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MATERIALS

FOR A

CARCINOLOGICAL FAUNA OF INDIA.

No. 5.

THE BRACHYURA PRIMIGENIA

OR

DROMIACEA.

BY

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SUPERINTENDENT OF THE INDIAN MUSEUM.

[*Reprinted from the "Journal Asiatic Society of Bengal," Vol. LXVIII, Part II, No.* 3, 1899.]

SMITHSONIAN INSTITUTION
280608
U. S. NATIONAL MUSEUM.

CALCUTTA:

BAPTIST MISSION PRESS.

1899.

Materials for a Carcinological Fauna of India. No. 5. The Brachyura Primigenia, or Dromiacea. By A. Alcock, M.B., C.M.Z.S., *Superintendent of the Indian Museum.*

[Received 1st September; Read 1st November, 1899.]

The opinions adopted in this paper are those of Boas, that the *Dromiacea* are *Brachyura*; and of Bouvier, that they connect the higher *Brachyura* with the Homarid family of *Macrura*.

I have endeavoured to show that the *Dromiacea*, or *Brachyura Primigenia*, include two natural groups—*Dromiidea* and *Homolidea*—each of which is a collection of families equivalent to the collections of families recognized as *Catometopa*, *Cyclometopa*, etc.; but, as is only to be expected in dealing with primitive groups, the families are small.

After raising a family to the rank of a tribe, and splitting it up into several independent families, it may seem inconsistent to unite the recognized genera of other authors, as is done in this paper with the genera *Dromia*, *Dromidia*, *Cryptodromia*, and *Petalomera*, all of which are treated as sub-genera of *Dromia*. But the reason for this treatment is that these are all linked together by intermediate forms.

The Indian species of Dromiacea number 28 and belong to the following genera and families:—

Dromiidea { **Homolodromidæ**:—*Arachnodromia* (?=*Homolodromia*).
Dynomenidæ:—*Dynomene*, *Acanthodromia*.
Dromiidæ:—*Dromia* (*Dromidia*, *Cryptodromia*, *Petalomera*), *Pseudodromia*, *Conchoecetes*, *Sphaerodromia*.

HOMOLIDEA { **Homolidæ**:—*Homola* (*Paromola*, *Homolax*) *Paromolopsis*, *Hypsophrys*.
Latreillidæ:—*Latreillopsis*, *Latreillia*.

DROMIACEA or BRACHYURA PRIMIGENIA.

Anomoures Dromiens and *Homoliens*, (part) Milne Edwards, Hist Nat. Crust. II., pp. 168, 180.

Dromiacea, De Haan, Faun. Japon. Crust. p. 102.

Dromidea vel Anomoura Maiidica Superiora, Dana, U.S. Expl. Exp. Crust. pt. 1, p. 400.

Anomoura Dromidea, Miers, Cat. Crust. New Zealand, p. 57.

Dromiacea, J. E. V. Boas, Recherches sur les affinités des Crustacés décapodes, p. 202.

Anomoura Dromidea, Haswell, Cat. Austral. Crust. p. 138.

Anomura Dromidea, Henderson, Challenger Reports, Zoology, Vol. XXVI., p. 2.

Dromiacés (Etudes Comparatives des), Bouvier, Bull. Soc. Philomath. Paris, (8) VIII., 1896, pp. 34–108.

Dromiidea, Ortmann in Bronn's Thier Reich, V. ii., Arthropoda, p. 1153.

Carapace seldom broader than long, subquadrilateral or subovoid (sometimes sub-circular, or urn-shaped, or sub-pentagonal), often (as also the appendages) pilose. Front narrow.

Orbits and antennulary fossæ may either be altogether wanting, or there may be common orbito-antennulary fossæ into which the eyes and antennules are both retractile.

The antennal peduncle consists of four separate joints, and the antennal flagellum is long.

The epistome is triangular or truncate-triangular, and is well delimited from the palate.

The buccal cavern is quadrilateral, but is usually broader in front than behind. The external maxillipeds may be pediform, or sub-pediform, or completely opercular.

The last pair of legs are dorsal in position, and, with few exceptions, are prehensile slender and reduced in size, or even sometimes rudimentary. The penultimate pair sometimes resemble the last pair.

The abdomen in both sexes is large, and usually consists of seven separate segments: in the male it has the usual anterior two pairs of modified copulatory appendages: in the female it has the usual four pairs of ovigerous appendages and, in addition, a pair of smaller uniramous appendages situated on the first segment.

The genital ducts of the female open upon the bases of the 2nd pair of legs (third pereiopods): those of the male open on the bases of the fourth pair of legs (5th pereiopods).

The gills are usually phyllobranchiæ, but may be trichobranchiæ,

or may be intermediate in character. The gill-plumes vary in number from 20 to 8 on either side.

I follow Professor Boas, without hesitation, in placing the *Dromiacea* at the base of the Brachyura; and I further think that no one who has access to a good spirit-collection of the two groups in question can read M. E.-L. Bouvier's clever paper, cited above, *Sur l'origine Homarienne des Crabes*, without accepting the opinion of the latter author—an opinion previously suggested, as the author states, by Huxley—that the *Dromiacea* are the directly-connecting link between the Crabs (*Brachyura vera*) and the *Homaridæ*.

The *Dromiacea* may be divided into two groups, which seem to me to have something more than family value, namely, the *Dromiidea* and the *Homolidea*, each of which has retained certain primitive characters while following its own line of evolution.

Tribe I. Dromiidea.

Dromiens, Milne Edwards, Hist. Nat. Crust. II. 168.

Dromidæ, Henderson, Challenger Anomura, p. 2.

Dromidæ et *Dynomenidæ*, Ortmann, in Bronn's Thier Reich, V. ii. Arthropoda, p. 1155.

Carapace sometimes longer than broad, often broader than long, without *linea anomurica*.

Eyes and antennules almost always (*Homolodromia* is the only exception) retractile into common orbito-antennulary pits, the lower wall of which is formed about equally (1) by the basal joint of the antennule itself, (2) by the basal joint of the antenna, and (3) by a sub-orbital spine or dentiform lobe.

These orbito-antennulary pits very often show traces of a subdivision into two fossæ, one for the antennule the other for the eye—the boundary between the two fossæ often being a tooth or a sort of fold in the upper margin of the "orbit."

Eye of the ordinary form, situated at the end of a short stout eye-stalk, the basal joint of the eye-stalk being inconspicuous.

Epistome triangular, its apex usually being in close contact with the deflexed tip of the front. Vault of the palate of good depth.

External maxillipeds usually opercular, sometimes subpediform.

Fingers of the chelipeds generally short, stout, channelled along their opposed surfaces, and strongly calcified in their distal half.

Sternum of the female traversed longitudinally, in part or in almost all of its extent, by a pair of special grooves that sometimes end in special tubercles.

The abdomen of both sexes consists of seven separate segments. Very often a pair of small lateral plates—the rudiments, probably, of

the 6th pair of abdominal appendages—is intercalated between the 6th and 7th somites.

The gill-plumes vary in number from 20 to 14 on either side, and are either trichobranchiæ or phyllobranchiæ.

Many of the species are protected by a commensal Sponge or Ascidian, or by an empty valve of a Lamellibranch shell, carried over the back.

Tribe II. Homolidea.

p. 154

Homoliens (part), Milne Edwards, Hist. Nat. Crust. II. 180.

Homolidæ, Henderson, Challenger Anomura, p. 18: Ortmann in Bronn's Thier Reich, V. ii., Arthropoda, p. 1155.

Carapace longer than broad: *linea anomurica*, usually present.* The eyes are not retractile into orbits, nor the antennules into pits. Basal antennulary joint subglobular.

The eye-stalks each consist of two movable joints, a slender conspicuous basal joint which is sometimes of great length, and a stout terminal joint that carries the eye. The antennal flagella are, except in the *Latreillidæ*, much longer than the carapace.

The interantennulary septum is a distinct vertical process, and is not formed merely by the close apposition of the apex of the epistome to the front.

The front forms a slender triangular prominent rostrum which may be bifid at tip, and often has a spine on either side of its base.

The division between the epistome and palate is distinct, but the vault of the palate is shallow.

External maxillipeds pediform or sub-operculiform.

The chelipeds and legs are long and slender: the fingers are not channelled *en cuillère*. Only the last pair of legs is dorsal and reduced in size.

Sternum of the female broad, without any special longitudinal grooves.

The abdomen of the male, and usually but not always of the female also, consists of seven separate segments. There are no lateral platelets intercalated between the 6th and 7th segments.

The gills are phyllobranchiæ, and the gill-plumes vary in number from 14 to 8 on either side.

* The *linea anomurica* is a curious suture-line running fore and aft on either side from the posterior border of the carapace to the inner side of the antennal spine. For its homologue among the nearer relatives of the Homolidea we have to go to certain species of *Peneus*.

In comparing the above synopses of characters it will be seen that the *Dromidea* as a whole have developed along Brachyurous lines in respect of the antennal flagella, orbits, external maxillipeds, and shape of the carapace, but have kept near to the primitive (Homarid) branchial arrangements. Whereas the *Homolidea* as a whole show a tendency to approach the higher Brachyura in the reduction of the branchiæ, but have not departed much from the primitive (Homarid) type in the form of the antennal flagella, external maxillipeds and very imperfect orbits.

Tribe I. DROMIIDEA.

The *Dromiidea* which, notwithstanding the more Brachyurous form of the carapace of their best known representatives, are as a whole more primitive than the *Homolidea* may be divided into three families—*Homolodromidæ*, *Dynomenidæ* and *Dromidæ*—characterized as follows:—

Family I. Homolodromidæ.

Carapace longer than broad, convex in both directions, the true cervical and the branchial grooves both present.

Front cut into two prominent teeth, between which, but on a much lower plane, a third small tooth is *sometimes* present.

Antennal flagella longer than the carapace.

External maxillipeds with a marked pediform cast.

Chelipeds equal, slender, though stouter than the legs.

First two pair of legs much longer than the chelipeds: last two pair much shorter than the first two pair, subdorsal, prehensile.

The abdomen in both sexes consists of 7 separate segments: there are no lateral platelets intercalated between the 6th and 7th segments.

The gills are trichobranchiæ, or are intermediate between trichobranchiæ and phyllobranchiæ: the gill-plumes are very numerous—there may be as many as 20 on either side.

Epipodites are present on the chelipeds and first two or three pairs of legs.

The sternal grooves of the female are short, ending at the level of the genital openings.

To this family belong the following genera:—

1. *Homolodromia*, A. Milne Edwards, Bull. Mus. Comp. Zool., VIII. 1880, p. 33: Recueil de Fig. de Crustacés Nouveaux, pl. 39, fig. 2.

2. *Dicranodromia*, A. Milne Edwards, Bull. Mus. Comp. Zool., VIII. 1880, p. 31: Recueil de Fig. de Crust. Nouv. pl. 10.

3. *Arachnodromia, Alcock, *seq.*

Family II. Dynomenidæ, Ortmann.

Dynomenidæ, Ortmann in Bronn's Thier Reich, V. ii., Arthropoda, p. 1155.

Carapace variable, either longer than broad and convex, or broader

than long and flattish. Branchial groove usually present, cervical groove sometimes present.

Front broadly triangular, sometimes notched at tip. Antennal flagella not so long as the carapace.

External maxillipeds typically opercular, completely closing the buccal cavern.

Chelipeds equal or slightly unequal, generally much stouter than the legs.

First three pair of legs stout, about as long as the chelipeds. Fourth (last) pair of legs dorsal and rudimentary.

The abdomen in both sexes consists of 7 segments, and there is a pair of lateral platelets intercalated between the last two segments.

The gills are phyllobranchiæ but sometimes show the transition from tricho- to phyllobranchiæ. The gill-plumes are 16 (?) on either side.

Epipodites are present on the chelipeds and first three pair of legs.

Sternal grooves of the female ending at the level of the genital openings.

To this family belong (1) Dynomene and (2) Acanthodromia, both of which are represented in Indian Seas.

Family III. Dromiidæ, *restr.*

Carapace variable, sometimes as long as or even a little longer than broad, sometimes slightly broader than long; generally strongly convex in both directions, sometimes flat; commonly ovoid or subcircular, occasionally pentagonal.

* Branchial groove almost always conspicuous, the true cervical groove present or absent on the dorsum of the carapace.

Front usually cut into 3 teeth, the middle one of which is always on a much lower plane than the others and is often of insignificant size or even absent: the front is rarely triangular, without lateral teeth. Antennal flagella shorter than the carapace.

External maxillipeds typically opercular, completely closing the buccal cavern.

Chelipeds equal, generally much stouter than the legs.

First two pair of legs generally stout, not much shorter than the chelipeds.

Last two pair of legs generally much reduced in length and slender, subdorsal and prehensile. There is a tendency for the fourth (last)

* The branchial groove of Bouvier, which by most authors is called the "cervical" groove.

pair to be a little longer than the third pair, and occasionally the fourth pair are as long as either of the first two pair.

The abdomen in both sexes consists of 7 segments, and there is a pair of lateral platelets intercalated between the last two segments.

The gills are phyllobranchiæ and are 14 in number on either side.†

An epipodite of small size is present on the chelipeds but not on any of the legs.†

The sternal grooves of the female are variable: they may end at the level of the genital openings, or at the bases of the first pair of legs, or at the bases of the chelipeds.

To this Family the following genera belong:—

1. *Dromia, Fabr.: *seq.*
2. *Dromidia, Stimpson, Proc. Ac. Nat. Sci. Philad. 1858, p. 225 (subgenus of *Dromia*).
3. *Cryptodromia, Stimpson: *seq.* (subgenus of *Dromia*).
4. *Petalomera, Stimpson: *seq.* (subgenus of *Dromia*).
5. *Pseudodromia, Stimpson: *seq.* (? subgenus of *Dromia*).
6. *Eudromia*, Henderson, Challenger Anomura, p. 13.
7. ???*Ascidiophilus*, Richters, in Mobius, Meeresf. Maurit. p. 158 (it is very doubtful whether this form really belongs to the Dromiacea).
8. *Conchoecetes, Stimpson: *seq.*
9. *Hypochoncha*, Guérin, Rev. et Magasin de Zool. (2) VI. 1854, p. 333.
10. *Sphærodromia, Alcock, *seq.*

Tribe II. HOMOLIDEA.

The *Homolidea* may be divided into two families *Homolidæ* and *Latreillidæ*.

To the Homolidæ belong (1) *Homola* (with subgenera *Homolax* and *Paromola*), (2) *Paromolopsis* and (3) *Hypsophrys*, all of which are represented in Indian Seas.

To the Latreillidæ belong (1) *Latreillia* and (2) *Latreillopsis*, both of which are found in Indian Seas.

I am uncertain of the position of *Homologenus* A. Milne Edwards, which, but for its singular branchial formula, would be placed with the *Homolidæ*. It may perhaps have to be separated as a distinct subfamily of the *Homolidæ*. The references to the literature of this genus are: Bull. Mus. Comp. Zool. VIII., 1880, p. 34, (*Homolopsis* name pre-occupied): Challenger Anomura, p. 20: Bull. Soc. Philom., Paris, (8) VIII., 1896, p. 63: Bronn's Thier Reich V. ii., Arthropoda, p. 1156.

† Huxley (P. Z. S. 1878, p. 785) gave, as the sum of the branchial formula of *Dromia*, gills 16+1 epipodite. Milne Edwards (Hist. Nat. Crust. II. 172) stated that the gills are 14 in number on either side. I have examined *Dromia Rumphii* and *D. ciliata*, *Cryptodromia lateralis*, *Petalomera granulata* and *Conchoecetes artificiosus*, in all of which I find 14 branchiæ and 4 epipodites on either side: of the epipodites, 3 belong to the maxillipeds, and one—a small one—to the chelipeds.

Family I. Homolidæ *restr.*

Carapace elongate-quadrangular, or ovoid, or urn-shaped.

Terminal joint of the eyestalk (with the eye) either longer or shorter than the slender basal joint. Antennal flagella much longer than the carapace.

External maxillipeds pediform or subpediform.

The gill-plumes are 14 in number on either side, and there are epipodites to the chelipeds and first two pair of legs.

Homola, Paromolopsis and Hypsophrys, *vid. seq.*

Family II. Latreillidae.

Carapace elongate-quadrangular, or piriform.

Basal joint of eye-stalk very much longer than the terminal joint.

Antennal flagella not so long as the carapace.

External maxillipeds sub-operculiform.

The gill-plumes are 8 in number on either side and there are no epipodites to the chelipeds or legs.

Latreillia and Latreillopsis, *vid. seq.*

Tribe DROMIIDEA.

Family HOMOLODROMIDÆ.

Arachnodromia, Alcock.

Arachnodromia, Alcock, Investigator Deep Sea Brachyura, p. 17.

Carapace elongate-oblong but somewhat broader behind than in front, deep, inflated, tomentose, its texture thin but well calcified: two creases break either lateral border, the posterior one being the more distinct and being continued to the cardiac region (=branchial groove), the anterior one, or true cervical groove, not proceeding far on to the dorsum of the carapace.

The front is horizontal, prominent, and deeply bifid.

The antennule and eye of either side are completely retractile into a common deep fossa (just as in *Dromia*) which affords them complete protection. As in *Dromia*, the floor of this common antennular-orbital fossa is formed by a subocular ("antennal") tooth in contact with the basal joint of the antenna, and, as in *Dromia*, the outer wall of the orbit is breached by a wide gap. The orbital portion of the fossa, which is loosely filled by the eyes, has the hollow for the eyes much deeper than the hollow for the eyestalk. The eyestalks are long and slender, the eyes small but perfectly formed and well pigmented.

The two basal joints of the antennæ, which are quite freely movable, largely fill the gap in the lower wall of the orbit, and lie in the

same plane with the antennules; the second joint has its antero-external angle produced to form a coarsish spine: the antennal flagella are longer than the carapace.

The palate is particularly well demarcated from the epistome and is rather broader in front than behind: the ridges that define the expiratory canals are very distinct. The epistome is in the closest possible contact with the front, but without complete fusion. The external maxillipeds are distinctly operculiform, but owing to the moderate expansion of the merus and to the coarseness of the palp, they have a slight pediform cast: they close the buccal cavern, but not so tightly as in *Dromia*.

The chelipeds are equal and are rather slender, though considerably stouter than the legs: the fingers are well calcified and are hollowed *en cuillère*, the tip of the dactylus shuts into a notch in the tip of the opposed finger.

The legs are cylindrical: the first two pairs are very long, the last two are short, subdorsal in position, and cheliform rather than subcheliform.

The sternal grooves of the female end opposite the openings of the oviducts, without tubercles.

The abdomen of both sexes consists of seven distinct segments. In both sexes the pleuræ of the 3rd–6th abdominal somites are remarkably free and independent (*i.e.* not in contact with those in front and behind) and the last abdominal tergum is nearly as long as the preceding five combined. In the male this last tergum is marked in a way that suggests its formation out of a segment fused with a pair of appendages.

This crustacean, as I have previously remarked, so closely resembles the *Homolodromia* described and figured by Milne Edwards* and referred to by Bouvier,† that at first sight it might be supposed to be the same form.

In *Homolodromia*, however, it is distinctly stated that the antennules are not retractile, and that there are no special orbits.

In *Arachnodromia*, on the other hand, there are orbits formed on exactly the same plan as, and hardly less perfect than, those of *Dromia*, and they afford complete protection to the retracted eyes and antennules, the antennulary flagella folding, as in *Dromia*, behind the eyes.

* A. Milne Edwards, Bull. Mus. Comp. Zool. Vol. VIII. 1880, p. 32, and Recueil de figures de Crustacés Nouveaux etc. pl. 39, fig. 2. Not the Homalodromia of Miers, which ought to be placed with *Pseudodromia*.

† E. L. Bouvier, Bull. Soc. Philom. Paris (8) VIII. 1895–96, p. 37, *et seq.*

The branchial formula is as follows:—

Somites and their appendages.	Podobranchiæ.	Arthrobranchiæ.	Pleurobranchiæ.
VII. ...	0 ep.	0	0 = ep.
VIII. ...	1+ep.	1	0 = 2+ep.
IX. ...	1+ep.	2	0 = 3+ep.
X. ...	1+ep.	2	0 = 3+ep.
XI. ...	1+ep.	2	1 = 4+ep.
XII. ...	1+ep.	2	1 = 4+ep.
XIII. ...	0	2	1 = 3
XIV. ...	0	0	1 = 1
	5+6 ep.	11	4 20+6 ep.

The formula is thus the same as that given by Bouvier for *Homolodromia*.

1. *Arachnodromia Baffini*, Alcock and Anderson.

Arachnodromia Baffini, Alcock and Anderson, Ann. Mag. Nat. Hist., Jan. 1899, p. 7: Alcock, Investigator Deep Sea Brachyura, p. 19, pl. ii. fig. 1.

Carapace square-cut, dorsally convex, very distinctly (from a fourth to a fifth) longer than broad, its greatest breadth being just in front of the posterior border, its greatest depth approximating its greatest breadth, its surface—like that of the appendages and other parts of the body—tomentose. Except for a few small sharp granules anteriorly and laterally and along the lateral border, the carapace is unarmed.

The front is deeply cleft to its base, and has the form of two acutely triangular teeth.

Upper margin of orbit notched near its outer angle which is dentiform, the outer angle of the lower margin of the orbit is much more strongly dentiform, and the (outer) orbital wall between the two spines is deficient.

Antennal flagella longer than the carapace.

Chelipeds rather slender, unarmed except for a few granules seen on denudation, about $1\frac{2}{3}$ times the length of the carapace: fingers strongly hollowed '*en cuillère*,' especially the immovable one, which alone has teeth: wrist not elongate.

First two pairs of legs more than twice the length of the carapace: their dactyli are about two-thirds the length of the preceding joint, are stout, are sharply spinate along the posterior edge, and end in a claw. The last two pairs of legs are about the same length as the carapace: their small claw-like dactyli shut down on a ring of spines at the end of the preceding joint.

Colours: dirty whitish, with a bluish tinge on the carapace and a faint reddish tinge elsewhere; eyes chocolate.

Two males and a female, from off the Travancore coast, 430 fms.: a small male from the Andamans, 238–290 fms.

The carapace of the largest male is 20 millim. long and 15 millim. broad, that of the female is 30 millim. long and 24 millim. broad.

Named in memory of the great Arctic explorer William Baffin, who, according to Sir Clements Markham, was the first Englishman to actually plot charts in these Seas.

Family DYNOMENIDÆ.

This family includes two genera which may be thus diagnosed:—

I. Carapace flattish, broader than long, covered with hairs ..... DYNOMENE.

II. Carapace convex, longer than broad, covered with spines or spinules..... ACANTHODROMIA.

DYNOMENE, Latreille.

Dynomene, Latreille in Cuvier's Règne An. (nouv. ed. 1829) p. 69: Desmarest, Consid. Gen. Crust. p. 133: Milne Edwards, Hist. Nat. Crust. II., 179: Lamarck, Hist. Nat. Anim. sans Vert. (2nd ed.) p. 482: De Haan, Faun. Japon. Crust. p. 104: Dana, U. S. Expl. Exp. Crust. pt. I. p. 402: A. Milne Edwards, Ann. Sci. Nat. Zool., (6) VIII. 1879, Art. 3: Ortmann in Bronn's Thier Reich, V. ii., Arthropoda, p. 1155.

All parts usually tomentose.

Carapace subcircular, flattish, broader than long.

Front broadly triangular, dorsally grooved, more or less distinctly notched or divided at tip.

Palate well delimited from epistome: efferent branchial channels well defined.

The chelipeds usually do not differ greatly in size from the first 3 pair of legs: these are stout and of about equal length.

The 4th (last) pair of legs are quite rudimentary and alone are dorsal in position.

As regards the branchial formula, according to Bouvier it follows the *Dicranodromia* and *Homolodromia* type.*

Distribution: Tropical Indo-Pacific, from Madagascar to California.

2. *Dynomene pilumnoides*, n. sp.

The carapace and appendages are covered with an exceedingly thick tomentum of club-shaped hairs, the chelipeds and legs are also

* The material at my disposal, at present, does not permit me to indulge in dissection; but I have been able to make out that the branchial plumes and epipodites are more numerous than they are in *Dromia*, *Cryptodromia*, &c.

thickly fringed with additional longer hairs. The hairs completely conceal all the texture and sculpture beneath them.

Carapace subcircular, slightly broader than long, flattish. The true cervical groove is well defined, but the branchial groove is hardly distinguishable.

There are a few very inconspicuous symmetrically-disposed elevations on the gastric and on the anterior part of the branchial regions.

Front broadly-triangular, deeply grooved in the middle line. Upper border of orbit oblique, with a fold or notch (best visible from inside the orbit) marking the equivalent of the inner supra-orbital angle of the higher Brachyura. Outer orbital angle not dentiform. Suborbital lobe neither dentiform nor prominent.

Lateral borders of carapace with 5 spine-like teeth, the last of which is much the smallest and stands at the branchial groove.

Chelipeds in the male a little unequal, the smaller one not stouter and not quite so long as, the larger one a little stouter and about as long as, the first 3 pair of legs.

When the chelipeds and legs are denuded their surface is smooth and unsculptured, except that the posterior border of the dactyli of the legs is serrated.

The fourth (last) pair of legs are small slender rudiments, not a fourth the length of the 3rd pair.

A single male from off the Laccadives, 50 to 30 fathoms. Its carapace is 10 millim. long and a little over 11 millim. broad.

The smoothness of the carapace, chelipeds, and legs, and the inequality of the chelipeds distinguish this species from *D. hispida*, of which, however, it may prove to be only a variety.

Acanthodromia, A. Milne Edwards.

Acanthodromia, A. Milne Edwards, Bull. Mus. Comp. Zool., VIII. 1880, p. 31: E. L. Bouvier, Bull. Soc. Philomath. Paris, (8) VIII. 1895-96, pp. 56, 57: Ortmann in Bronn's Thier Reich, V. ii., Arthropoda, p. 1155.

Differs from *Dynomene* in having the carapace longer than broad, convex, and closely covered with spines instead of hairs.

Distribution: Caribbean Sea, Andaman Sea.

3. *Acanthodromia margarita*, Alcock.

Dynomene margarita, Alcock, Investigator Deep-Sea Brachyura, p. 19, pl. ii. fig. 3.

The whole carapace and dorsal surfaces of the chelipeds and legs are as closely as possible covered with spines and spinules: the under surfaces of the body and legs, the eye-stalks, antennæ, and external maxillipeds are closely and crisply granular.

On the middle of the fourth abdominal tergum is a pair of large smooth tubercles, exactly like pearls, in the closest contact with one another.

Carapace sub-cylindrical, longer than broad; the regions hardly indicated, though the branchial groove is fairly plain.

Front triangular, deflexed, dorsally concave; its apex is in close contact with that of the epistome, and is surmounted by a horizontal spine similar to the larger spines of the surface of the carapace. Supra-orbital borders tumid.

Antennal flagellum nearly as long as the carapace.

Chelipeds equal, a little longer and stouter than the first three pair of legs, and not much longer than the carapace. The fingers are short and stout, and meet throughout their extent.

The last pair of legs are slender rudiments, hardly longer than the basal joints of the other legs.

Colours in spirit, milk-white; eyes deeply pigmented.

A single small male from the Andaman Sea, 75 fathoms. The length of its carapace is 5 millim.

Family III. DROMIIDÆ.

Key to the Indian Genera and Sub-genera of Dromiidæ.

I. Front much as in *Dynomene*, broadly triangular, dorsally grooved, notched at tip. The sternal grooves of the female do not quite reach to the level of the genital openings on the 2nd pair of legs (third pereiopods) ... SPHÆRODROMIA.

II. Front usually cut into 3, sometimes into 2, teeth, rarely entire and triangular. The sternal grooves of the female reach at least as far as the level of the bases of the 1st pair of legs (2nd pereiopods):—

1. Third pair of legs, though shorter, not less stout than the first two pair; ending in a huge talon-like dactylus: fourth (last) pair of legs short and very slender. Carapace flat and pentagonal ... CONCHOECETES.
2. Third pair of legs similar to, though sometimes shorter than, the fourth (last) pair. Carapace usually convex:—
   i. Fourth (last) pair of legs shorter than the first two pair:—
      a. Legs smooth, the meropodites not specially dilated ... ... DROMIA & DROMIDIA.
      b. Legs nodular, the meropodites not specially dilated ... ... CRYPTODROMIA.
      c. Legs nodular; the meropodites of the chelipeds and first or first two pair of legs dilated, petal-like ... ... PETALOMERA.

ii. Fourth (last) pair of legs at least as long as either of the first two pair ... ... PSEUDODROMIA.

Sphærodromia and *Conchoecetes*, and doubtfully also *Pscudodromia*, are to be looked upon as distinct genera. But there are undoubtedly forms that are transitional between *Dromia* and *Dromidia*, *Dromia* and *Cryptodromia*, and *Cryptodromia* and *Petalomera*, and even between *Dromia* and *Pseudodromia*, so that these ought not, in a natural system, to be separated, though for convenience they may stand as subgenera.

DROMIA, Fabr.

Dromia, Fabricius, Ent. Syst. Suppl. p. 359: Latreille, Hist. Nat. Crust. &c., V. p. 383, and Nouv. Dict. Hist. Nat. IX. p. 583: Leach, Malac. Pod. Britt. Text of pl. xxiv A: Risso, Hist. Nat. Crust. Nice, p. 15, and Hist. Nat. Europ. Mérid. V. p. 32: Desmarest, Consid. Gen. Crust. p. 136: Milne Edwards, Hist. Nat. Crust. II. p. 170: Lamarck, Hist. Nat. Anim. sans Verteb. (2nd ed. 1838) V. p. 480: De Haan, Faun. Japon. Crust. p. 104: Dana, U. S. Expl. Expd. Crust. pt. I. p. 402: Stimpson, Proc. Acad. Nat. Sci. Philad. 1858, p. 226: Henderson, Challenger Anomura, p. 3: Ortmann in Bronn's Thier-Reich, V. ii. Arthropoda, p. 1155.

All parts except the tips of the fingers and of the dactyli are, generally, tomentose.

Carapace not elongate in the adult, strongly convex or subglobose.

Front cut into three teeth, of which the middle one is on a lower plane than the others and is often so much smaller than them and so much deflexed as to be hardly visible from a dorsal view.

Palate well delimited from the epistome: efferent branchial channels well defined, but not always bounded by distinct and unbroken ridges.

The chelipeds may have some of the joints nodose, but the legs are smooth.

None of the legs have the merus dilated. The last two pair of legs are distinctly subcheliform, the spine at the end of the propodite against which the dactylus closes being well developed.

The sternal grooves of the female do not meet, and they end on the 2nd segment of the sternum, between the 2nd pereiopods.

The branchial formula is as follows:—

Somites and their appendages.	Podobranchiæ.	Arthrobranchiæ. Anterior.	Arthrobranchiæ. Posterior.	Pleurobranchiæ.	
VII. ...	ep.	0	0	0	= 0 ep.
VIII. ...	1+ep.	0	0	0	= 1+ep.
IX. ...	0 ep.	1	1	0	= 2+ep.
X. ...	0 ep.	1	1	0	= 2+ep.
XI. ...	0	1	1 (small)	1	= 3
XII. ...	0	1	1 (small)	1	= 3
XIII. ...	0	1	0	1	= 2
XIV. ...	0	0	0	1	= 1
Total ...	1+4 ep.	5	4	4	14+4 ep.

Key to the Indian species of the genus Dromia.

I. Carapace, in the adult, broader than long: front cut into 3 teeth of nearly equal size, of which the middle one is slightly the most prominent: third (penultimate) pair of legs hardly shorter than the fourth (last); no large spine at the far end of the *posterior* border of the propodite of the fourth (last) pair — *D. rumphii.*

II. Carapace, in the adult, at least as long as broad: front cut into 3 teeth, of which the middle one is so small and so much deflexed as to be almost invisible in a dorsal view: third pair of legs very markedly shorter than the fourth; a spine at the far end of the posterior border of the propodite of the fourth (last) pair quite as long as that at the same end of the anterior border:—

1. True antero-lateral border of the carapace with 3 or 4 spines ... ... — *D. cranioides.*
2. True antero-lateral border of the carapace entire ... — *D. unidentata.*

4. *Dromia Rumphii*, Fabr.

Cancer lanosus, Rumph, Amboin. Rariteitk. p. 19. pl. xi. fig. 1: Seba, Thesaurus, III. pl. xviii. fig. 1.

Dromia Rumphii, Fabricius, Ent. Syst. Suppl. p. 360: Milne Edwards, Hist. Nat. Crust. II. 174: De Haan, Faun. Japon. Crust. p. 107, pl. xxxii: Stimpson, Proc. Ac. Nat. Sci. Philad. 1858, p. 240: Tozzetti, "Magenta" Crust., p. 207: Hilgendorf MB. Ak. Berl. 1878, p. 812: Miers, Ann. Mag. Nat. Hist. (5) V. 1880, p. 370: Walker, Journ. Linn. Soc. Zool., XX. 1886–1890, p. 111: Ortmann, Zool. Jahrb. Syst. &c., VI. 1892, p. 548: J. R. Henderson, Trans. Linn. Soc., Zool, (2) V. 1893, p. 406.

All parts, except the tips of the fingers and dactyli thickly covered with a harsh tomentum, with sometimes scattered tufts of longer hair on the carapace.

Carapace in adults broader than long, strongly convex, smooth; the cardiac region and the branchial or "cervical" groove on either side of it plainly marked, the gastric region faintly indicated.

Front cut into 3 nearly horizontal teeth of nearly equal size, the middle one on a lower plane and slightly the most prominent.

In young specimens a projection of the upper edge of the "orbit" marks the position of the true inner supra-orbital angle of the higher Brachyura, but in large specimens this is obsolete.

The true antero-lateral borders of the carapace are cut into 3 sharp but coarsish spines, the 2nd of which often has a small secondary denticle at its base. In addition there is a spine on the summit of the infra-orbital lobule, and another at the outer angle of the buccal cavern.

The postero-lateral borders are convergent and have one large coarse spine, placed immediately behind the cervical groove.

The borders of the arm are dentate, especially the upper border, and there are 2 or 3 teeth at the distal end of the upper border of the

wrist and also along the upper border of the hand: all these dentations tend to disappear with age, but two tubercles at the distal end of the outer surface of the wrist are persistent.

The last two pair of legs are about equal in length, being hardly half as long as either of the first two pair: their propodites are much shortened and their dactyli are claw-like, forming chelæ with the opposing spines at the end of the propodites.

Abdomen of male with a broad convex ridge down the middle line.

Sternal tubercles of female very prominent.

In the Indian Museum are specimens from the Persian Gulf, Malabar coast (28 to 49 fms.), Ceylon, Coromandel coast, Orissa coast (25 fms.) and Gulf of Martaban (67 fms.)—also 2 from Mauritius.

The largest specimen, from Mauritius, is $5\frac{3}{4}$ inches across the carapace.

Distribution: Indo-Pacific Seas from the Red Sea, Mozambique, and Mauritius, to Japan.

5. *Dromia cranioides*, de Man.

Dromidia cranioides, de Man, Journ. Linn. Soc. Zool., XXII., 1887-88, p. 208, pl. xiv. figs. 6–8.

Carapace etc. tomentose. Carapace globose, a little longer than broad, perfectly smooth except for the "cervical" groove and for two small faint elevations side by side just behind the front.

Front cut into 3 teeth, the middle one of which is so small and on a plane so much lower than the others that it is hardly seen in a dorsal view.

A strongly marked acuminate tooth near the middle of the upper border of the orbit is equivalent to the inner supra-orbital angle of higher Brachyura. Sub-orbital lobe dentiform, very prominent. Outer orbital angle well defined, dentiform.

True antero-lateral borders of the carapace cut into 3 or 4 teeth; when 4, it is by intercalation of a little tooth close to the base of the 1st. A tooth, but not a strongly pronounced one, at the outer angle of the buccal cavern.

Postero-lateral borders slightly convergent, with one tooth placed immediately behind the branchial or "cervical" groove.

Borders of arm granular or obtusely denticulate, as also are the upper border of the wrist and of the hand: two tubercles at the distal end of the outer surface of the wrist.

The last two pair of legs have a claw-like dactylus which meets, in a cheliform manner, a spine at the end of the corresponding propodite.

The last pair are much longer than the last pair but one, being, in fact, very little shorter than either of the first two pair.

Abdomen as in *D. Rumphii.*

The sternal grooves of the female approach one another closely, but do not actually meet, on the 2nd segment of the sternum, near the anterior end of which they terminate, without tubercles.

In the Indian Museum are 5 females and 2 males, from the Andamans and Mergui.

The length of the carapace of the largest specimen is 28 millim.

This species may perhaps turn out to be identical with *Dromia indica* Gray (Zool. Miscell., p. 40).

6. *Dromia unidentata*, Rüppell.

Dromia unidentata, Ruppell, 24 Krabben roth. Meer., p. 16, pl. iv. fig. 2, pl. vi. fig. 9: Milne Edwards, Hist. Nat. Crust. II. 178: A Milne Edwards, Nouv. Archiv. du Mus. IV. 1868, p. 72: Hilgendorf, MB. Ak. Berl. 1878, p. 813: Müller, Verh. Nat. Ges. Basel. VIII. 1886, p. 472.

Dromidia unidentata, Kossmann, Reise roth. Meer. Crust. p. 67: de Man, Journ. Linn. Soc. Zool. XXII. 1887-88, p. 207, pl. xiv. figs. 4-5: Cano, Boll. Soc. Nat. Napol. III. 1889, p. 255: Henderson, Trans. Linn. Soc. Zool., (2) V. 1893, p. 405: Ortmann, in Semon's Zool. Forschungsr. (Jena. Denkschr. VIII) Crust. p. 34.

Carapace etc. densely tomentose. Carapace about as long as broad, strongly convex, with some dimples when denuded, two of which, separating the post-gastric from the branchial regions, are specially conspicuous. "Cervical" groove well marked.

Front cut into two broadish but sharp teeth, between which, but on a very much lower plane, is an extremely inconspicuous denticle.

A broad tooth ("internal supra-orbital angle") near the middle of the upper border of the orbit. Outer orbital angle prominent but not dentiform. Suborbital lobe bluntly dentiform, but not prominent.

Antero-lateral borders entire, rather sharp. A slight projection, hardly amounting to a tooth, on the postero-lateral border, immediately behind the branchial or "cervical" groove.

Chelipeds smooth, except for two tubercles at the far end of the outer surface of the wrist.

The fourth (last) pair of legs are not so very much shorter than either of the first two pair and are very much longer than the 3rd pair. The propodites of the last two pair are much broader than long and are very spiny, one of the spines in the case of the last pair being as least as long as the spine against which the claw-like dactylus closes—so much so, that the last pair of legs appear to end in 3 claw-like spines the middle one being the dactylus.

The abdomen of the male, when denuded, has a broad convex ridge down the middle line; but when not denuded, the terminal segments of the male abdomen form with the basal joints of the chelipeds and first two pair of legs a remarkably flat surface, owing to the abrupt angular bending up of the last three abdominal segments.

The sternal grooves of the female approach one another closely, but do not actually meet, on the second segment of the sternum, near the anterior end of which they terminate, but without tubercles.

In the Indian Museum are 4 males and an egg-laden female, from Mergui, Port Blair, and the Persian Gulf.

The carapace of the largest specimen is 24 millim. long.

In one of the male specimens, in which the vasa deferentia are, as usual, wonderfully prominent, there are also openings in the basal joints of the 2nd pair of legs (3rd pereiopods) corresponding with the genital openings of the female.

Distribution: Red Sea and East coast of Africa, Persian Gulf, Ceylon, Coromandel coast, Andaman Sea, Malay Archipelago.

Subgenus Dromidia, Stimpson.

Dromidia, Stimpson, Proc. Ac. Nat. Sci. Philad., 1858, p. 225: Henderson, Challenger Anomura, p 12: Ortmann in Bronn's Thier Reich, V. ii. Arthropoda, p. 1155.

Dromidia is stated to differ from *Dromia* in having (1) the efferent branchial channels defined each by a distinct ridge, and (2) the sternal grooves of the female produced to, and approximated together on, the segment bearing the chelipeds.

Neither of these characters is sufficiently definite to be of generic value, and I do not think that they are enough to justify even subgeneric recognition.

Henderson (Trans. Linn. Soc., Zool. (2) V. 1893, p. 406) includes *Dromia* (*Dromidia*) *australiensis* Haswell in the Indian Fauna, basing his identification on de Man's figure (Archiv. für Naturges. LIII. 1887, i. pl. xvii. fig. 6.) But as that figure does not seem to me to correspond unequivocally with Haswell's description (Proc. Linn. Soc., N. S. Wales, VI. 1882, p. 755, and Cat. Austral. Crust. p. 139), it is sufficient for present proposes to quote these references.

Subgenus Cryptodromia, Stimpson.

Cryptodromia, Stimpson, Proc. Ac. Nat. Sci. Philad., 1858, p. 225: Miers, Cat. Crust. New Zealand, p. 57: Haswell, Cat. Austral. Crust., p. 138: Henderson, Challenger Anomura, p. 5: Ortmann in Bronn's Thier Reich, V. ii. Arthropoda, p. 1155.

Epidromia, Kossmann, Reise roth-Meer., Crust., p. 69.

Differs from *Dromia* only in the following particulars :—

The tomentum when present is much shorter and more velvet-like. The legs, or at least the first two pairs of them, are nodular, as well as the chelipeds. According to Bouvier and Ortmann the chelipeds are without an epipodite; but in *C. lateralis* this is not the case, and a small epipodite is present. The ridges that define the efferent branchial channels are distinct and unbroken.

The species are all small.

Key to the Indian species of Cryptodromia.

I. Carapace smooth (non-granular) :—
  1. No spines on *dorsal surface* of carapace :—
    i. Front cut into 3 teeth, all of which are plainly visible in a dorsal view : antero-lateral borders of carapace with more than one tooth : legs nodular :—
      a. Antero-lateral borders with 3 teeth (not including the outer orbital angle and some teeth on the subhepatic region) ... ... *C. tuberculata.*
      b. Antero-lateral borders with 2 teeth (not including the outer orbital angle, *etc.*) :—
        α. Regions of carapace well defined : no tubercle on the surface of the maxillipeds... ... *C. canaliculata.*
        β. A pearl-like tubercle in the middle of the exposed surface of the merus of the external maxillipeds ... ... *C. bullifera.*
    ii. Front cut into 3 teeth, the middle one of which is hardly seen in a dorsal view : antero-lateral borders of carapace with a single tooth, at their anterior end : legs hardly nodular ... ... *C. hilgendorfii.*
  2. A dorsal spine on the hepatic region of the carapace, just behind the outer orbital angle ... ... *C. de Manii*
II. Carapace (and appendages also) profusely granular : the regions of the carapace well defined and areolated :—
  1. Carapace subcircular in outline, its antero-lateral borders entire ... ... *C. ebalioides.*
  2. Carapace pentagonal in outline, its antero-lateral borders dentate ... ... *C. Gilesii.*

7. *Dromia* (*Cryptodromia*) *tuberculata*, Stimpson.

Cryptodromia tuberculata, Stimpson, Proc. Ac. Nat. Sci., Philad. 1858, p. 239 : de Man, Archiv. f. Naturges. LIII. 1887, i. p. 401.

Var. *pileifera*, nov.

Carapace etc. covered with a short scurfy tomentum which does not conceal the underlying texture.

Carapace broader than long, convex, smooth, without distinction of regions: the cervical groove broad, shallow.

Front cut into 3 broad triangular teeth of about equal size, the middle one of which is on a lower plane than the others and is deflexed.

A sharp tooth near the middle of the upper border of the orbit marks the true inner supra-orbital angle. Outer orbital angle dentiform. Suborbital lobe dentiform and very prominent.

True antero-lateral border cut into 3 or 4 blunt teeth: in the gap between the 1st tooth and the outer orbital angle two subhepatic teeth—one of which is large—show up and, from a dorsal view, look as if they belonged to the antero-lateral border: there are two similar teeth, one alone of which is conspicuous, at the outer angle of the buccal cavern.

On the postero-lateral border, at the branchial or "cervical" groove, is a denticle.

Wrist and palm, and corresponding joints of first two pair of legs, sharply and profusely nodular or tubercular on the outer surface: fingers compressed.

The third pair of legs, though much slenderer and less nodular than the first two pair and only about half their length, are fashioned on much the same plan, except that the propodite is much shortened: the spinule at the end of the propodite of this pair is not big enough to form a chela with the claw-like dactylus.

Last (4th) pair of legs slender and smooth, hardly a dactylus length shorter than the 2nd pair: their propodite has spines at the end of both borders, the spine at the end of the anterior border being large enough to form a chela with the dactylus.

Abdomen of the male slightly convex along the middle line, the 4th and 5th terga with some little nodules: in the female the 3rd–5th terga have the surface a little uneven, but not distinctly nodular.

Every specimen has a commensal sponge which covers it completely like a cap.

In the Indian Museum are 70 specimens from the Andaman reefs.

The carapace of a large egg-laden female is 9 millim. long and 11 millim. broad.

8. *? Dromia* (*Cryptodromia*) *canaliculata*, Stimpson.

? Cryptodromia canaliculata, Stimpson, Proc. Ac. Nat. Sci. Philad. 1858, p. 240: de Man, Archiv. f. Naturges. LIII. 1887, i. p. 402 (*et synon.*): Ortmann, Zool. Jahrb., Syst. etc. VI. 1892, p. 545.

Dromia tomentosa, Heller, SB. Ak. Wien, XLIV. 1861, p. 241: *Cryptodromia tomentosa*, Hilgendorf, MB. Ak. Berl. 1878, p. 813, pl. ii. figs. 3–5: Kossmann, Reise roth. Meer. Crust. p. 68.

? Cryptodromia pentagonalis, Hilgendorf, MB. Ak. Berl., p. 814, pl. ii. figs. 1-2: Henderson, Trans. Linn. Soc. Zool. (2) V. 1893, p. 406.

Carapace etc. with a short velvet-like tomentum.

Carapace not quite as long as broad, only moderately convex, its surface smooth, its regions very fairly indicated: the "cervical" groove is distinct, the fronto-orbital region is marked off by a shallow transverse groove that runs from one antero-lateral angle of the carapace to the other, and the front itself is longitudinally grooved.

Front cut into 3 broad triangular teeth of nearly equal size, the middle one nearly horizontal, but on a much lower plane than the others, which are somewhat upcurved.

A tooth near the middle of the upper border of the orbit marks the position of the true inner supra-orbital angle. Outer orbital angle dentiform. Infra-orbital lobe dentiform and prominent.

True antero-lateral borders with 2 teeth: in the concave space between the 1st (large) tooth and the outer orbital angle a stout sub-hepatic tooth shows up: below this again is a tooth at the outer angle of the buccal cavern.

On the postero-lateral border, immediately behind the branchial or "cervical" groove, is a tooth.

Outer surface of wrist nodular: a few nodules on upper border of palm: fingers short and stout.

The carpus and propodite of the first 2 pair of legs are nodular.

Last 2 pair of legs short and slender, not nodular, not much more than half the length of the first 2 pair: the 4th (last) pair very little longer than the 3rd. Both end in a strong claw-like dactylus, but are hardly cheliform, although there is a small spine at the end of the propodite of each.

Abdomen of male with a convex ridge down the middle line.

In the Indian Museum are 2 males and a female, from the Andamans and the Persian Gulf.

The carapace of the largest specimen is 14 millim. long.

Distribution: Indo-Pacific Seas from the Red Sea and east coast of Africa to Japan.

9. *Dromia* (*Cryptodromia*) *bullifera*, n. sp.

Carapace etc. covered with a short tomentum.

Carapace about as long as broad, convex, smooth, "cervical" groove shallow but distinct.

Front cut into 3 acute rather slender teeth, the middle one of which is on a lower plane and is slenderer than the others.

An acute *spine* near the middle of the upper border of the orbit

marks the position of the true inner supra-orbital angle. Outer orbital angle spiniform. Suborbital lobe dentiform, fairly prominent.

True antero-lateral borders of the carapace cut into 2 teeth, the anterior being much the larger and spine-like. In the gap between the 1st tooth and the outer orbital angle two small smooth subhepatic tubercles are visible, one below the other.

An elegant pearl-like tubercle below the sub-orbital lobe, a similar but smaller tubercle in the middle of the exposed surface of the merus of the external maxillipeds and another in the middle of the exposed surface of the second joint of the antennal peduncle, are characteristic.

An extremely inconspicuous denticle on the postero-lateral border, behind the branchial or "cervical" groove.

Outer surface of wrist and upper surface of hand nodular, two of the nodules on the wrist being particularly acute.

Outer surface of carpus and propodite of first 2 pair of legs broken but not nodular.

Last 2 pair of legs slender and very short, ending in claw-like dactyli, but not cheliform.

Abdomen of male convex along the middle line.

One specimen from the Andaman Sea, 490 fathoms, another from off Ceylon, 34 fathoms.

The carapace is between 5 and 6 millim. long.

10. *Dromia* (*Cryptodromia*) *de Manii*, n. sp.

Cryptodromia sp. de Man, Journ. Linn. Soc. Zool., XXII., 1888, p. 211.

Carapace etc. tomentose.

Carapace as long as broad, convex, smooth, the "cervical" groove rather indistinct.

Front cut into 3 teeth, the middle one of which is the smallest and is much deflexed.

A tooth near the middle of the upper border of the orbit (true inner supra-orbital angle). Outer orbital angle dentiform.

Suborbital lobe dentiform, but not very prominent.

True antero-lateral border with two blunt teeth: two more blunt teeth on the subhepatic border and one at the angle of the buccal cavern are continued on from the antero-lateral border.

A tooth on the hepatic region, dorsad of the antero-lateral border, and just behind the outer orbital angle, is characteristic.

A tiny denticle on the postero-lateral border, just behind the branchial or "cervical" groove.

Outer surface of wrist and upper surface of hand nodular; outer surface of hand granular.

Outer surface of carpus and propodite of first two pair of legs uneven but not distinctly nodular.

Last 2 pair of legs short, ending in claw-like dactyli, not cheliform; the 3rd pair shorter than the 4th.

A single small specimen from Mergui (Anderson collection).

11. *Dromia* (*Cryptodromia*) *Hilgendorfi*, de Man.

Cryptodromia Hilgendorfi, de Man, Archiv. f. Naturges. LIII. 1887, i. 404, pl. xviii. fig. 3.

Carapace etc. with a short velvet-like tomentum.

Carapace longer than broad, convex, smooth, without distinction of regions. "Cervical" groove broad and shallow.

Front cut into 3 teeth, the lateral ones broad and triangular, the middle one so small and deflexed as to be hardly visible in a dorsal view.

There is no distinct tooth in the upper border of the orbit, but only an angular bulge, to mark the position of the inner supra-orbital angle. Outer orbital angle and sub-orbital lobe not dentiform.

The antero-lateral borders of the carapace are smooth and entire, but as they bend sharply inwards towards the orbits their anterior angle forms a forwardly-directed tooth, the space between which and the outer-orbital angle is concave.

A very small prominence on the postero-lateral border, just behind the branchial or "cervical" groove.

The chelipeds and legs have an uneven surface, but are not really nodular, though both the inner and outer angles of the wrist are strongly pronounced.

The last 2 pair of legs are short and slender, the 4th (last) pair being very little longer than the 3rd; both end in stout claw-like dactyli but are not at all cheliform.

The abdomen bends in very sharply from the 4th segment, making the under surface of the body very flat.

In the Indian Museum are a male and a female from the Persian Gulf.

The carapace of the larger of the two is 12 millim. long.

Distribution: Indo-Malayan coasts.

12. *Dromia* (*Cryptodromia*) *ebalioides*, n. sp.

Carapace hardly at all tomentose: a few hairs on the borders of some of the leg-joints.

Carapace subcircular with projecting front, convex, *its surface closely and crisply granular:* not only are all its regions very distinct

but they are also areolated, *the individual areolæ being convex, subcircular, and particularly well defined.* The true cervical groove is present, as well as the branchial groove that generally goes by this name.

Front longitudinally grooved, cut into 3 serrulated teeth of which the lateral ones are broadly triangular, while the middle one is narrow and is more prominent than the others.

Upper border of the orbit very oblique, serrulate, devoid of any tooth to mark the inner supra-orbital angle of the higher Brachyura. Outer orbital angle and suborbital lobe not prominent.

Lateral borders of carapace serrulate, not toothed, though there may be a small granular bulge in front of, and another behind, the branchial groove.

Legs and chelipeds crisply granular, the chelipeds and first two pair of legs being also nodular.

Last 2 pair of legs very slender, hardly half the length of the first 2 pair, ending in hook-like dactyli, not cheliform.

First four abdominal terga with some symmetrical granular sculpture, the other three granular but not sculptured.

Three specimens, a male and 2 females, from Karáchi: the carapace of the largest is 7 millim. long and 8 millim. broad.

This species, and the one following, show the transition to *Petalomera*, having a granular carapace, on the dorsal surface of which the true cervical groove is as plain as the branchial groove that is commonly called "cervical."

13. *Dromia* (*Cryptodromia*) *Gilesii*, n. sp.

Closely related to *D. sculpta*, Haswell.

Carapace etc. without tomentum: a few hairs on some of the leg-joints.

Carapace pentagonal, convex, its greatest length about equal to its greatest breadth, the greater part of its surface covered with vesiculous granules: not only are all the regions very distinct, but they are also areolated—the areolæ however not being so individually convex as they are in *D. ebalioides*. The true cervical groove is present as well as the branchial groove.

Front cut into 3 triangular teeth, of which the middle one is the smallest and is on a lower plane and obliquely deflexed.

Upper orbital border very oblique: a hardly noticeable angulation —not a distinct tooth—marks the true inner supra-orbital angle. Outer orbital angle not pronounced. Suborbital lobe dentiform but inconspicuous.

Antero-lateral borders of the carapace cut into 5 small granular

lobules or tubercles, of which only 2 belong to the true antero-lateral border, the other 3 being on the subhepatic border and at the outer angle of the buccal cavern.

A granular tubercle on the postero-lateral border, just behind the "cervical" groove.

Legs and chelipeds crisply granular, the chelipeds and first 3 pair of legs being also nodular: the nodules on the carpal joints being prominent and acute.

Last 2 pair of legs very slender, hardly half the length of the first 2 pair, ending in hook-like dactyli, not cheliform.

All the abdominal terga are symmetrically sculptured and granular.

In the Indian Museum are 12 specimens, from off the Malabar coast, 29 fathoms.

The carapace of an egg-laden female is 8 millim. long and $8\frac{1}{2}$ millim. broad.

This species is easily distinguished from *D. ebalioides* (1) by the sharply pentagonal carapace and less-completely isolated areolæ, (2) by the much more prominent front, (3) by the antero-lateral borders being broken by irrregular tubercle-like lobules, and (4) by the more abundant sculpture of the abdominal terga: in everything but the form of the meropodites of the chelipeds and first pair of legs it strongly resembles *Petalomera*.

Subgenus Petalomera, Stimpson.

Petalomera, Stimpson, Proc. Ac. Nat. Sci. Philad. 1858, p. 226: Ortmann in Bronn's Thier Reich (*loc. cit.*) p. 1155 (name only).

Petalomera closely resembles *Cryptodromia*, especially those species (e.g. *Cryptodromia ebalioides* and *Gilesii*) in which the carapace is granular and has the cervical and branchial grooves both well developed; and, indeed, only differs from *Cryptodromia* in having the upper border of the meropodites of the chelipeds and first, or first two, pair of legs produced to form a crest so high and thin as to give the joint a petaloid shape.

As in *Cryptodromia* the sternal grooves of the female are widely separated, and end on the second segment of the sternum. As in *Cryptodromia lateralis*, there is a small epipodite to the chelipeds.

There can be little doubt that, as Bouvier (Bull. Soc. Philomath. Paris, 1895-96, p. 52) has remarked, *Petalomera* is a form slightly more primitive than *Dromia*.

14. *Dromia* (*Petalomera*) *granulata*, Stimpson.

Petalomera granulata, Stimpson, Proc. Acad. Nat. Sci. Philad., 1858, p. 240.

Petalomera granulata var. *indica*, nov.

Carapace etc. hardly at all hairy: edges of the legs with some hairs.

Carapace a little longer than broad, convex in both directions, with numerous unevenly distributed vesiculous granules: all the regions are distinct, but are not all equally well defined. The cervical and branchial grooves are both present.

Front dorsally grooved in the middle line, cut into 3 serrulate teeth, of which the lateral ones are large and triangular, while the middle one is small and is on a much lower plane.

Upper border of orbit serrulate: a tooth near its middle marks the true inner supra-orbital angle. Outer orbital angle pronounced but not dentiform. The suborbital lobe forms a granular tubercle or denticle.

Antero-lateral borders of the carapace cut into 3 granular teeth, the first being subhepatic.

Chelipeds very much more massive than the legs: they and the first pair of legs have the merus petaloid, owing chiefly to the thin expanded crest-like upper border of that joint. The merus of the next pair of legs is not petaloid, though its upper border is sharp. In the chelipeds the inner border of the wrist and the upper border of the palm are prominent and, like the upper and outer surfaces of those joints, are granular: there are also two sharp tubercles at the distal end of the outer surface of the wrist.

The first two pair of legs have a few small granules on some of the joints.

The last two pair of legs are slender and end in small claw-like dactyli, which are opposed to a very small spine at the end of the corresponding propodites: the last pair of legs is very slightly longer than the penultimate pair.

In both sexes the abdomen has a convex ridge down the middle line and the 2nd–5th terga have a few scattered granules on their surface.

The largest specimen is slightly over 15 millim. long, and is 15 millim. broad, but in young specimens the carapace is more elongate.

Colours of fresh spirit specimens: yellow with some reddish markings.

In the Indian Museum are 22 specimens, from the Andamans and from off Ceylon 28 and 34 fathoms.

This variety is to be distinguished from *P. granulata* only in not having the merus of the second pair of legs (3rd pereiopods) petaloid.

From *P. pulchra* Miers (Zool. H. M. S. "Alert" p. 260, pl. xxvii. fig. A), it differs only in having a tooth on the supra-orbital border,

which border is serrulate not entire; in having small spines opposed to the dactyli—at the end of the propodites of the last two pair of legs; and in being more granular.

Pseudodromia, Stimpson.

Pseudodromia, Stimpson, Proc. Acad. Nat. Sci. Philad. 1858, p. 226: Henderson, Challenger Anomura, p. 15: Ortmann in Bronn's Thier Reich V. ii., Arthropoda, p. 1155.

Homalodromia, Miers (*nec* Homolodromia A. M. Edw.), Zool. H. M. S. Alert, p. 553.

Differs from *Dromia* in the following particulars :—

The carapace is more elongate: the efferent branchial channels are defined by ridges.

The fourth (last) pair of legs are as long as, or even longer than, the first two pair.

The sternal grooves of the female end in two tubercles placed close together near the bases of the chelipeds.

The front is variable: it may be cut into 3 teeth as in most species of *Dromia*, or may be bilobed, or may consist of a single triangular tooth.

Distribution: Cape of Good Hope, Seychelles, Indian Seas.

N. B.—In *Dromia cranioides*, *Dromia unidentata* and *Cryptodromia tuberculata* the last pair of legs are very little shorter than either of the first two pair.

Key to the Indian species of Pseudodromia.

I. Front cut into 2 teeth, each of which is fused at base with the tooth of the prominent supra-orbital margin; so that the front appears to be formed of two divergent lobes each of which has both its angles acutely produced ... *P. quadricornis.*

II. Front in the form of a single triangular tooth ... ... *P. integrifrons.*

15. *Pseudodromia quadricornis*, n. sp. ?

Perhaps identical with "*Homalodromia*" *Coppingeri*, Miers, *loc. cit.* pl. L. fig. B.

Carapace etc. tomentose: a line of peculiarly long silky hairs forms a fringe or false anterior border to the carapace, behind the deflexed front.

Front deflexed, dorsally grooved in the middle line, cut into two broad teeth, each of which is fused at base with a broad supra-orbital tooth; so that the front appears to consist of two large lobes, each of which has its anterior edge concave and its antero-lateral angles acutely produced.

Carapace in the adult longer than broad, slightly convex from side

to side, almost flat fore and aft behind the line of long hairs that marks the frontal declivity: its surface, when denuded, is quite smooth: only the branchial or "cervical" groove and the cardiac region are distinctly marked.

Lateral borders of carapace entire, except that there may be a tiny denticle behind the branchial groove.

Outer orbital angle dentiform. Sub-orbital lobe dentiform, deflexed.

Chelipeds and legs comparatively slender, the chelipeds shorter and hardly stouter than the legs. Two acute tubercles on the outer surface of the wrist.

Fourth (last) pair of legs little slenderer and about as long as either of the first two pair, ending in a slender claw-like dactylus to which a spinule at the end of the propodite is opposed.

Third pair of legs not less stout than, but only about half the length of, the first two pair; ending in a claw-like dactylus.

Length of carapace of an adult female 7 millim., greatest breadth—in front of the branchial groove—6 millim.

Five specimens, representing adults of both sexes, from off Ceylon 34 fathoms, and from the Pedro Shoal (off Malabar coast) 20 fathoms.

16. *Pseudodromia integrifrons*, Henderson.

Pseudodromia integrifrons, Henderson, Trans. Linn. Soc., Zool., (2) V. 1893, p. 406, pl. xxxviii, figs. 7–9.

The front is entire and subacute, without any trace of lateral teeth. No supra-orbital tooth. Outer orbital angle poorly marked. The lower orbital margin is formed simply by the antennal peduncle. Chelipeds without any teeth or tubercles. The carpus of the third pair of legs has a prominent lobe at its distal end, anteriorly. Dactylus of fourth (last) pair of legs straight: its propodite with 3 spinules at its far end.

Loc. Tuticorin.

No specimens in the Indian Museum.

Conchœcetes, Stimpson.

Conchœcetes, Stimpson, Proc. Acad. Nat. Sci. Philad. 1858, p. 226: Ortmann in Bronn's Thier Reich, *loc. cit.* (name only).

All parts, except the dactyli and tips of the fingers covered with a close velvet-like tomentum.

Carapace not elongate in the adult, dorsally quite flat, subpentagonal in outline.

Front cut into 3 teeth, of which the middle one is on a very much lower plane (and is much smaller) than the others.

Palate well delimited from the epistome. Efferent branchial channels well defined.

Chelipeds in the male much more massive and much longer than any of the legs.

The third pair of legs though shorter are not less massive than the first 2 pair, and end in a powerful talon like dactylus. The fourth (last) pair of legs are short and slender.

The sternal grooves of the female do not meet; they end in tubercles on the second segment of the sternum, between the bases of the 2nd pereiopods.

The branchial formula and the number and disposition of the epipodites are exactly the same as in *Dromia Rumphii.*

17. *Conchœcetes artificiosus* (Fabr.).

Dromia artificiosa, Fabricius, Ent. Syst. Suppl. p. 360.

Cancer artificiosus, Herbst, Krabben, III. iii. 54, pl. lviii. fig. 7.

Conchœcetes artificiosus, Stimpson, Proc. Ac. Nat. Sci. Philad. 1858, p. 240: Henderson, Trans. Linn. Soc. Zool. (2) V. 1893, p. 407.

Dromia conchifera, Haswell, P. L. S., N. S. Wales, VI. 1881-2, p. 757, and Cat. Austral. Crust. p. 141, pl. iii. fig. 4.

Carapace etc. with a dense short velvety tomentum.

Carapace pentagonal, with the posterior border of the pentagon curved, its dorsal surface quite flat, its greatest length (in the adult) about equal to its greatest breadth, its regions all well defined by grooves, the cervical and branchial furrows both equally well cut. There are sometimes a few granules near the borders of the carapace.

Front cut into 3 teeth with granular edges, the middle tooth being smaller and on a much lower plane than the others.

Upper border of orbit very oblique: a granular spine or tooth marks the true inner supra-orbital angle of higher Brachyura. Outer border of orbit apparently wanting, but on denudation a concave row of granules is found there. Sub-orbital lobe granular and dentiform.

On the lateral borders of the carapace are usually two teeth, one immediately behind the cervical groove, the other immediately behind the branchial groove: one (the posterior) or both of these teeth may be nearly worn away, but usually they are both very distinct. Between the first spine and the orbital tooth is a (sometimes broken) row of granules, and between the same spine and the outer angle of the buccal cavern is a row of granular tubercles: the surface of the subhepatic region between these two rows of granules may, when denuded, be granular or not.

The chelipeds of the adult male are, as in *Petalomera*, much more

massive, compared with the legs, than is usual among the *Dromiidæ*: they are also much longer than any of the legs. The outer (exposed) surfaces of all the joints are more or less granular, some of the granules on the palm being very large and visible without denudation: in addition, the upper border of the arm is denticulate, there are 2 coarse tubercles at the far end of the outer surface of the wrist, and 2 on the palm just behind the finger-joint.

The first 3 pair of legs are short, and some of their joints are granular and have a tendency to be nodular, a nodule on the carpus being very constant. Of these legs the 3rd pair ends in a characteristic stout talon-like dactylus the tip of which bends towards a stout lobe at the proximal end of the posterior border of the propodite.

The 4th (last) pair of legs are very slender: they reach to the far end of the carpus of the 3rd pair, and end in a tiny claw-like dactylus.

In both sexes the abdomen has a convexity along the middle line.

This species protects itself with the valve of a Lamellibranch shell, which is held, as in a frame, by the strong hook-like dactyli of the third pair of legs.

In the Indian Museum are 24 specimens, representing both sexes, from the Andamans, from various parts of the Coromandel coast between Tuticorin and the Hooghly Delta, and from off the Indus Delta up to a depth of 62 fathoms. It appears to prefer a muddy bottom. There are also 2 specimens from Hongkong.

Distribution: coasts of India, China, and Australia.

18. *Conchoecetes andamanicus* n. sp.?

Three small specimens from the Andamans differ from adults in the following particulars:—

The carapace, though not flatter dorsally, is more depressed and therefore much shallower.

The front is cut into 2 triangular teeth, between which is a tiny denticle not visible in a dorsal view.

There is no spine or tooth on the upper border of the orbit.

The antero-lateral borders though granular are thin and overhanging, and are without any traces of spines or teeth behind the cervical and branchial grooves. The subhepatic regions are granular but are not bounded by distinct rows of granules.

Instead of two blunt tubercles behind the finger-joint, there is one large subacute tubercle.

Sphærodromia, Alcock.

Sphærodromia, Alcock, Investigator Deep-Sea Brachyura, p. 16.

All parts except the tips of the fingers and of the dactyli are tomentose.

Carapace not elongate, subglobose. Front broadly triangular, somewhat deflexed, dorsally grooved, rather deeply notched at tip (of the *Dynomene*-type).

Palate well delimited from the epistome: efferent branchial channels defined by ridges.

The chelipeds and legs are as in typical *Dromia*, except that the chelipeds are not at all nodose.

The sternal grooves of the female are wide apart and do not reach to the level of the genital openings, exactly resembling those of *Dynomene*.

Though the gills are phyllobranchiæ the individual gill-plates are narrow and thick and are undoubtedly transitional.

19. *Sphærodromia Kendalli*, Alcock & Anderson.

Dromidia Kendalli, Alcock & Anderson, J. A. S. B. Vol. LXIII. pt. 2, 1894, p. 175: Illustrations of the Zoology of the Investigator, Crustacea, pl. xxiv. figs. 1, 1*a*.

Dromia (*Sphærodromia*) Kendalli, Alcock, Investigator Deep-Sea Brachyura, p. 16.

Carapace etc. covered with a dense, yellowish, velvet-like tomentum.

Carapace sub-circular, globose, smooth except for a few vesiculous granules on the pterygostomian regions and on the posterior part of the sidewall, only the cardiac region and the branchial, or "cervical" groove are marked. [The *true* cervical groove is not distinguishable on the dorsum of the carapace].

The front consists of two triangular teeth. The upper border of the orbit is oblique, but there is no tooth—only a break, or fold, better visible from below than from above—to mark the true inner supra-orbital angle. The outer angle of the orbit is not defined. The sub-orbital lobe is broadly and bluntly triangular.

Lateral borders of the carapace entire, the antero-lateral borders subcristiform and ending at the sub-orbital lobe.

The external maxillipeds when closed leave a gap between their anterior border and the edge of the epistome.

Vesiculous granules are present on the edges of the arms, on the upper and outer surfaces of the wrists, and everywhere on the hands except on the lower part of the inner surface.

The last two pairs of legs are about equal and are about half as long as the other legs: each ends in a small claw-like dactylus which is opposed to two or three tiny spinules at the end of its propodite.

A single female, with the carapace 18 millim. in diameter from the Bay of Bengal, off Nellore coast, 112 fathoms.

20. *Sphærodromia nux*, n. sp.

Differs from *Sphærodromia Kendalli* only in the following particulars :—

The carapace though of the same subglobular shape is a little broader than long; and the antero-lateral border, instead of running to the orbital angle, runs down without interruption to the outer angle of the buccal cavern. The surface of the carapace, especially in its antero-lateral parts, is finely granular under a lens. The sub-orbital lobe is neither dentiform nor prominent.

A male and a female from the Gulf of Martaban, 70 fathoms.

The carapace of the female is nearly 10 millim. long and nearly 11 millim. broad.

Tribe HOMOLIDEA.

Family I. HOMOLIDÆ.

Key to the Indian genera of the Family Homolidæ.

I. Carapace ovoid. External maxillipeds quite pediform: terminal joint of the eye-stalk very much longer than the basal joint, which is obsolescent: dactylus of last pair of legs very small, and shutting down on the slightly expanded *distal* border of the propodite ... ... HYPSOPHRYS.

II. External maxillipeds subpediform, the merus, though not a broad joint, having its outer angle distinctly dilated: terminal joint of the last pair of legs shutting against the *posterior* border of the propodite :—

1. Carapace subquadrilateral, or urn-shaped, not depressed; its hepatic spine some distance behind the level of the supra-orbital spine: the terminal joint of the eye-stalk is not always quite as long as the basal joint ... ... HOMOLA.
2. Carapace urn-shaped, depressed; its hepatic spine almost on the same level as the supra-orbital spine: the terminal joint of the eye-stalk is a little longer than the basal joint ... ... PAROMOLOPSIS.

HOMOLA, Leach.

Homola, Leach, Trans. Linn. Soc., Vol. XI. 1815, p. 324, and Zool. Miscell. Vol. II. p. 82, pl. lxxxviii: Latreille, Nouv. Dict. d'Hist. Nat. XV. 1817, p. 277, and in Cuvier's Regne Animal, ed. 1829, p. 67: Desmarest, Consid. Gen. Crust. p. 133: Risso, Hist. Nat. Europ. Merid. Vol. V. pp. 34-35: Roux, Crust. de la Mediterranée text of pl. vii: Milne Edwards, Hist. Nat. Crust. II. 181: deHaan, Faun. Japon. Crust. p. 105: Dana U. S. Expl. Exp. Crust. pt. I. p. 403: Heller, Crust. Sudl.

Europ. p. 148: Henderson, "Challenger" Anomura, p. 18: Ortmann, Zool. Jahrb. Syst. etc. VI. 1892, pp. 540 and 542 and in Bronn's Thier Reich, V. ii. Arthropoda, p. 1156: A. Milne Edwards and Bouvier, "Hirondelle" Brachyures et Anomures (Monaco 1894) p. 60: Alcock, Investigator Deep-Sea Brachyura, p. 6.

Carapace deep, longer than broad, quadrilateral or urn-shaped, with deep vertical sides, the gastric region well demarcated and occupying the anterior half of the carapace, the linea anomurica distinct and dorsal.

Front narrow, forming a rostrum, which is either entire or bifid at tip and has a spine, often of large size, on either side of its base.

The orbits are quite incomplete and do not even conceal the eye-stalks, and the eyes, which project far outside them, are retractile against the sides of the carapace. The eye-stalks are long and are composed of two joints, a slender basal joint, and a swollen terminal joint that carries the eye, the terminal joint (with the eye) being nearly as long as the basal joint.

The epistome is fairly or very distinctly marked off from the palate. The expiratory canals are very well defined. The external maxillipeds are subpediform.

The chelipeds are rather slender and generally somewhat spiny. The legs are long and more or less compressed and spiny, the last pair are subcheliform, but have the propodite dilated near the basal end and never twice the length of the dactylus.

The abdomen of both sexes consists of seven separate segments and is rather broad.

The branchial formula is as follows :—

Somites and their appendages.	Podo-branchiæ.	Arthrobranchiæ.		Pleuro-branchiæ.	
		Anterior.	Posterior.		
VII. ...	0 ep.	0	0	0 =	ep.
VIII. ...	1+ep.	0	1	0 =	2+ep.
IX. ...	0 ep.	1	1	0 =	2+ep.
X. ...	0 ep.	1	1	0 =	2+ep.
XI. ...	0 ep.	1	1	1 =	3+ep.
XII. ...	0 ep.	1	1	1 =	3+ep.
XIII. ...	0	1	0	1 =	2
XIV. ...	0	0	0	0 =	0
	1+6 ep.	5	5	3 =	14+6 ep.

Distribution: West Indies and Atlantic coasts of N. America, Azores and coast of Portugal: Mediterranean: East Indian Seas from Cape Comorin to the Philippines.

In my *Account of the Investigator Deep Sea Brachyura*, I have proposed the following subdivision of the genus *Homola*:—

1. Homola. Carapace square-cut, its broadest part being in front, across the middle of the gastric region: the *linea anomurica* rather

inconspicuous, keeping close to the lateral border. Rostrum a non-cylindrical bifid tooth, with a smaller spine on either side of its base. 2nd joint of antenna-peduncle having its antero-external angle produced to form a spine. Palate distinctly delimited from the epistome everywhere except in the middle line. The last pair of legs reach to the end of the carpus of the preceding pair.

Types *H. barbata* (Herbst) and *H. andamanica*, Alcock.

Homolax. Carapace urn-shaped, its greatest breadth being behind, across the middle of the branchial regions: the *linea anomurica* conspicuous, running well inside the lateral border. Rostrum as in *Homola*. 2nd joint of antenna-peduncle having its antero-external angle acute, but not spiniform. Palate as well demarcated from the epistome in the middle line as it is elsewhere. The last pair of legs reach beyond the end of the carpus of the preceding pair.

Type *H. megalops*, Alcock.

Paromola Wood-Mason. "Carapace decidedly macrurous in form," its greatest breadth being behind: the *linea anomurica* very conspicuous and well inside the lateral border. Rostrum a simple cylindrical spine of large size, flanked on either side by a single spine of equal or greater size. 2nd joint of antenna-peduncle not produced or specially acute at the antero-external angle. Palate everywhere well demarcated from the epistome. The last pair of legs not reaching beyond the end of the merus of the preceding pair.

Types *H. cuvieri*, Roux and *H. profundorum*, Alcock.

Subgenus *Homola*.

21. *Homola andamanica*, Alcock.

Homola andamanica, Alcock, Investigator Deep-Sea Brachyura, p. 7: and Illustrations of the Zoology of the Investigator, Crustacea, pl. xl. fig. 1.

This may, very possibly, prove the same as *Homola orientalis* Henderson, though it cannot be quite reconciled with the description, still less with the figure, of that species.

In any case it is probably only a variety of *Homola barbata*, with 3 good specimens of which—representing both sexes—it has been compared. The only differences between it and *H. barbata* are the following:—

The eyes are more reniform. The second spine of the lateral border is just behind the hepatic region. There are spines on the posterior border of the meropodites of all four pairs of walking legs.

Carapace elongate-subquadrilateral, its greatest breadth is across the middle of the gastric region, behind which point its sides are quite straight and vertical: it is well calcified, and, like all other parts except the antennary flagella, is covered with short soft but stiff hairs that are not thick set enough to form a coat of concealment.

Rostrum a depressed grooved tooth, bifid at tip. Four spines on the anterior border of the carapace, namely, one on either side of the rostrum, one at either supra-orbital angle.

Lateral borders of dorsum of carapace straight, very slightly convergent, spinate; the first spine, which stands alone on the hepatic region, is of pre-eminent size, the second though much smaller than the first is much larger than any of the others.

Gastric region very well demarcated, armed with nine large spines —three in a triangle on either median area, one on either lateral area, and one on the hinder part of the central area.

Some spines on the subocular, subhepatic, and pterygostomian regions—largest on the subocular region, where they are definitely arranged in two crescentic rows. Two spines, one *beside* the other, on the carapace outside the antenna-peduncle, in addition to the spinuliform suborbital angle.

Eyes somewhat reniform.

Chelipeds slender, but distinctly stouter than the legs, more hairy than the carapace, especially along the edges of the joints. Upper and lower borders of arm spiny; wrist with rows of spines on the outer surface and a spine or two at the inner angle; lower border of hand spiny, upper border of hand denticulate, cutting edges of fingers sharp, entire.

Legs compressed, their edges plumed with short bristles, with long bristles interspersed. The second and third pair, which are a dactyl-length longer than the first, are not quite $2\frac{1}{2}$ times the length of the carapace: in all three pairs both edges of the merus are armed with stout spines—at least in the distal half, and the posterior border of the propus and dactylus with compressed articulated spines which are distant and acicular on the propus but stout very regular and close-set on the dactylus.

The subcheliform fourth pair of legs reach very slightly beyond the end of the carpus of the preceding pair: the merus has 3 or 4 spines on the lower border and a terminal spine on the upper border, the claw-like dactylus closes against a bunch of spines on the near end of the propus.

In the Indian Museum are a male and female from the Andaman Sea, 79–90 fathoms; the carapace of the female is about 27 millim. long, and about 21 millim. wide.

Subgenus *Homolax.*

22. *Homola megalops*, Alcock.

Homola megalops, Alcock, Ann. Mag. Nat. Hist., May 1894, p. 408: Illustrations of the Zoology of the R. I. M. S. 'Investigator,' Crustacea pl. xiv. figs. 1, 1*a*: Investigator Deep-Sea Brachyura, p. 9.

Carapace urn-shaped, its greatest breadth is across the middle of the branchial region; its sides, and still more the spinulate lateral borders of its dorsum, are elegantly curved; the hairs that cover it are so inconspicuous as to be recognizable only with a lens.

Rostrum a depressed grooved tooth, entire, or emarginate at tip. Four spines on the anterior border of the carapace arranged as in *H. barbata.*

The only enlarged spine of the lateral border stands alone on the hepatic region.

Nine spines on the gastric region—two immediately behind the spines at the base of the rostrum, the other seven in an open S-shaped curve across the middle of the region.

A single row of spines on the subocular region, which region is remarkably hollowed for the reception of the retracted eye. Two spines, one above the other, on the carapace beside the antenna-peduncle, in addition to the bluntly-dentiform suborbital angle.

Eyes reniform, very large, their major diameter being one-sixth the breadth of the carapace.

Chelipeds slender, their arms and wrists distinctly slenderer than the meropodites of the legs: in the adult male they do not reach halfway along the merus of the first pair of legs: they are covered with a short inconspicuous velvet, with hardly any long bristles on the edges of the joints: they are armed much as in *H. barbata*, but the *upper* border of the hand is spiny and the lower border faintly denticulate. The fingers, which have a sharp entire cutting-edge, are as long as the rest of the hand.

The legs have the surface—especially the dorsal surface—of most of the joints covered with a close short velvet, but have few or no bristles along their edges. The 2nd and 3rd pair, which are nearly a dactylus longer than the first, are nearly three times as long as the carapace: the subcheliform 4th pair reach beyond the end of the carpus of the preceding pair. The first three pair have the anterior edge of their greatly compressed meropodite closely spinate, and the posterior edges of that joint and the ischium closely spinulate; their last three joints have the edges smooth, except for a few small jointed spinules at the base of the posterior border of the dactylus. The last pair of legs have

the posterior edge of their subcylindrical meropodite closely spinate and have only a single terminal spine on the upper edge, the carpus has a strong terminal spine on its posterior border, and the propus has a salient group of spines behind the middle of its posterior border forming a subcheliform stump for the serrated posterior edge of the claw-like dactylus.

Colour in life salmon-pink.

Andaman Sea, 188–220 fathoms, a male and a female; 370–419 fathoms, 3 males and 3 females. Bay of Bengal, off Coromandel Coast, 145–250 fathoms, a male and a female. Gulf of Manár, off Colombo, 142–400 fathoms, 2 young males.

Dimensions of carapace of a full-grown specimen 41 millim. long, 36 millim. broad.

The gills are fourteen in number on either side, arranged as in *Homola barbata*, exclusive of a quite rudimentary posterior arthrobranch to the penultimate pair of legs.

Subgenus *Paromola*.

23. *Homola profundorum*, Alcock and Anderson.

Homola profundorum, Alcock and Anderson, Ann. Mag. Nat. Hist. Jan. 1899, p. 5: Alcock, Investigator Deep-Sea Brachyura, p. 10, pl. i. fig. 2.

Carapace very decidedly macruriform, deep, ovoid-triangular, broadest abaft the middle of the branchial region, tapering to an acutely-spiniform rostrum of which the length is about a third that of the rest of the carapace. Diverging from either side of the base of the rostrum is a spine of similar form and size. The only other elevations on the carapace are a hepatic spine just behind the hollow for the retracted eye, an antennal spine just outside the antennal base, and a blunt denticle near the middle of the ill-defined lateral border.

The gastric region is well delimited, and the *linea anomurica* is broad conspicuous and dorsal.

The stout cylindrical terminal joint of the eye-stalks is longer than the slender basal joint, the eyes are of good size, well pigmented, and hemispherical.

The chelipeds are slender but are stouter than the legs; the arm has the outer lower border spinate and, on the upper border, a few spinules and a strong terminal spine; both the inner and the outer angles of the wrist are armed with a strong spine, the fingers are much shorter than the hand and have the cutting-edge entire.

The legs are slender and subcylindrical, the 2nd and 3rd pair, which are slightly longer than the first, are at least three times the length of the carapace. In the first 3 pair there are a few distant

spines and a strong terminal spine on the anterior border of the merus, a few articulating spinules at the far end of the posterior border of the propodite, and a comb of articulating spines along the posterior border of the dactylus—the last joint being but half the length of the last but one. The dorsal fourth pair of legs are far slenderer than the others and do not reach the end of the merus of the preceding pair: their propodite is triangular, owing to the expansion of its posterior border, and opposes a sharply-serrated edge to the less strongly toothed posterior border of the short dactylus—the parts being cheliform rather than subcheliform.

The body and appendages are coated with very short distant bristles which do not conceal the surface: there are some longer and thicker bristles along the edges of the chelipeds, and a very few scattered hairs along the edges of the legs.

Three young females from off the Travancore coast, 430 fathoms.

The carapace of these is about 13 millim. long, and about 9 millim. in greatest breadth.

Paromolopsis, Wood-Mason.

Paromolopsis boasi, Wood-Mason, Ann. Mag. Nat. Hist., March, 1891, p. 268.
Paromolopsis, Alcock, Investigator Deep-Sea Brachyura, p. 11.

Resembles *Homola* but differs in the following important particulars:—

The carapace is "more brachyurous:" it is urn-shaped and *depressed*, its sides being far from vertical and being overhung by the sharply defined lateral borders. The hepatic region is elongate and advanced, so that the hepatic spine is on a level with the spines of the anterior border, and helps to form a very decided false-orbit. The buccal cavern is scarcely broader in front than behind.

In other respects it agrees with *Homola* and more particularly with the subgenus *Homolax*.

The branchial formula is the same as that of *Homola*.

24. *Paromolopsis boasi*, Wood-Mason.

Paromolopsis boasi, Wood-Mason, Ann. Mag. Nat. Hist., March 1891, p. 268 and fig. 5: Alcock, Investigator Deep-Sea Brachyura, p. 11.

Every exposed surface of the body and appendages, excepting only the flagella of the antennæ, is covered with an even, velvet-like, tomentum.

Carapace ending in a short triangular rostrum with an upturned tip, its greatest breadth, which is across the middle of the branchial regions, is equal to its length without the rostrum. Unlike the species

of *Homola*, the lateral border is well-defined throughout, is carinated, is co-extensive with the length of the carapace, and ends in a large triangular hepatic spine the tip of which is on a level with the tips of the spines of the anterior border: these are four in number, one on either side of the rostrum and one at either outer orbital angle.

There is an antennal spine and spinule, there are some definitely-placed nodular swellings on the well defined gastric region, and the surface of the denuded carapace is granular, but there are no spines other than those mentioned.

The swollen terminal joint of the eyestalk is rather longer than the slender basal joint: eyes of good size, well pigmented, hemispherical, retractile into a very decided hollow in the front wall of the hepatic region.

The 2nd joint of the antenna-peduncle is not produced or acute at the antero-external angle; the antennal flagellum is much longer than the carapace.

Chelipeds (in the adult female and young male) short, just reaching beyond the end of the carpus of the first pair of legs: the arm is slenderer than the corresponding joint of the first three pair of legs: the fingers are longer than the hands: none of the joints are spinate.

The second and third legs, which are longer than the first by their dactylus, and longer than the fourth by their merus and dactylus, are 3 times the length of the carapace. In the first three pair of legs the anterior border of the meropodite is armed with large spines, but the other joints are unarmed: the dactylus is slender, curved, and of great length, being hardly shorter than the preceding joint.

In the subcheliform, dorsal, fourth pair the anterior border of the merus ends in a spine and the posterior border of the merus is spiny throughout, the propus is much dilated and toothed at its basal angle posteriorly, so as to be *l*-shaped and has one or two spines on the undilated portion of its posterior border, and the dactylus is short and is toothed along the posterior border.

The abdomen of the male consists of seven segments.

The carapace of an adult female is 45 millim. long and 43·5 millim. broad.

The colours in life vary from red to bluish-pink.

In the Indian Museum are a large female and three young females from off the Andamans, 480–500 fathoms, 498 fathoms and 561 fathoms; a young male, a large adult female and four young females from off the Travancore coast, 406 and 430 fathoms; a large female with eggs from off the Laccadives, 360 fathoms; and a young female from off Colombo, 597 fathoms.

Hypsophrys, Wood-Mason.

Hypsophrys superciliosa, Wood-Mason, Ann. Mag. Nat. Hist., March, 1891, p. 269.

Hypsophrys, Alcock, Investigator Deep Sea Brachyura, p. 12.

Carapace deep, longer than broad, quadrilateral or ovate-oblong, with deep vertical parallel sides, the gastric region well delimited and occupying its anterior half, the *linea anomurica* dorsal, distinct or indistinct.

Front narrow, forming a simple or bifid rostrum which has a spine on either side of its base.

The orbits do not afford any concealment to the eyes, but form, on either side of the rostrum, a broad concave facet sharply marked off from the rest of the carapace by a ridge that arches round dorsally from the rostrum to the antennal spine: at the upper and inner angle of this facet is a well defined hollow that catches the knee of the 2nd and 3rd joints of the antennulary pedencle when fixed. The eyes are well formed: the terminal joint of the eyestalk is barrel-shaped much as in *Homola*, but the slender basal joint is short or obsolescent, so that the eyes do not appreciably project beyond the edge of the orbital facet.

The antennules and antennæ are identical with those of *Homola*.

The mouth-parts also are very like those of *Homola*, but as the outer border of the merus of the external maxillipeds is hardly at all expanded these appendages are even more pediform than in *Homola*.

Chelipeds slender, spiny, equal. Legs of the first three pair long, with broad compressed meropodites. Fourth pair of legs short, very slender, cheliform, their dactylus, which is many times shorter than their propus, shutting down against and co-terminous with the slightly expanded distal end of the propus.

The abdomen of both sexes consists of seven separate segments.

In general form *Hypsophrys* resembles *Homola barbata*, but it differs from *Homola* in the following particulars:—

1. The eyestalks are like those of *Dromia*, the long slender basal joint of *Homola* being reduced to next to nothing.

2. Though there are no true orbits there are distinct orbital facets, and the homologies of these with the orbits of *Dromia*—in respect both of conformation and of common use for eyes and antennules—are unmistakeable.

3. The external maxillipeds are unequivocally pediform, the merus being hardly broader than the ischium.

4. The fourth (last) pair of legs have the subchelæ or chelæ quite different in form: the propodite is long and is slightly expanded at its distal end, and the dactylus is a minute joint, ever so much smaller

than the propodite, that shuts down against the *distal border* of the latter like the blade of a knife.

The branchial formula of *Hypsophrys* is exactly the same as that of *Homola*.

25. *Hypsophrys superciliosa*, Wood-Mason.

Hypsophrys superciliosa, Wood-Mason, Ann. Mag. Nat. Hist., March 1891, p. 269: Illustrations of the Zoology of the "Investigator," Crust. pl. xiv. figs. 4, 4*a*, 1895: Alcock, Investigator Deep Sea Brachyura, p. 14.

Rostrum simply pointed. Linea anomurica rather indistinct.

Four small spines or teeth on the anterior (orbital) border of the carapace, two being far apart at the base of the rostrum and one at either outer orbital angle. Two, or all four, of these teeth may be obsolescent or obsolete.

Lateral borders of dorsum of carapace not defined, except by a single isolated spine on the hepatic region. Gastric region sharply subdivided into three subregions, of which the lateral are somewhat nodular. Two or three spines on the subhepatic and suborbital region, the innermost of which is "antennal," also sometimes a few spinules.

Eyes well formed and facetted, but pale. Antennal flagella about half again as long as the carapace.

The pediform external maxillipeds have their surfaces and edges devoid of spines.

Chelipeds slender, but much more massive than the legs, about half a hand-length shorter than the first pair of legs in the adult male: spines and spinules in rows on edges and on both inner and outer surfaces of arms, wrists and hands: fingers about three-fourths the length of the palm.

The second pair of legs, which are slightly longer than the first and third and considerably more than twice the length of the fourth, are slightly more than three times the length of the carapace.

In the first three pair the meropodites are compressed, with the anterior border spiny and the posterior border much less strongly and profusely spiny; the other joints are slender and unarmed, except for a few articulating spinelets at the far end of the posterior border of the propodite and in the basal half of the posterior border of the dactylus; the dactylus is slightly shorter than the propodite.

The fourth (dorsal) pair are very slender and are unarmed except at their cheliform ending: their propodite is many times longer than the dactylus.

The terminal joint of the male abdomen is bluntly triangular.

There are some soft bristles on the chelipeds, and a few on the legs, and some very short and inconspicuous hairs on the carapace.

Colours in life, pink.

The carapace of a large egg-laden female is 19 millim. long and 15 millim. broad.

This species has frequently been taken in the Laccadive Sea and in the sea to the north of the Laccadives at depths ranging from 740 to 931 fathoms, on soft bottoms.

In the Indian Museum are more than 30 specimens representing both sexes, both adult and in young stages.

26. *Hypsophrys longipes*, Alcock and Anderson.

Hypsophrys longipes, Alcock and Anderson, Ann. Mag. Nat. Hist., Jan. 1899, p. 6: Alcock, Investigator, Deep-Sea Brachyura, p. 15, pl. i. fig. 1.

Rostrum deeply bifid. Linea anomurica distinct.

Four large spines on the anterior border of the carapace—two close together at the base of the rostrum, one at either orbital angle.

Lateral borders of dorsum of carapace well defined, spinulate; the ridge on the side-wall of the carapace that defines the branchial regions anteriorly is also spinulate. A row of spines on the hepatic region, the largest of which is on the lateral border of the carapace and has a spine dorsad of it.

Gastric region obscurely subdivided, each lateral subregion is armed with 5 or 6 large spines, while on the median region there is a central spine sometimes followed by a row of spinules. Subhepatic and suborbital region with numerous large spines, one of which is "antennal."

Eyes well pigmented. Antennal flagella more than twice the length of the carapace.

Rows of spinules on the exposed surface of the ischium merus and exognath of the external maxillipeds, and a row on the basal joint of the antennules.

Chelipeds slender, reaching not far beyond the end of the carpus of the first pair of legs, the arm and wrist not stouter than the meropodites of the first 3 pair of legs; spinate and spinulate as in the preceding species; fingers as long as the hand.

The second and third pair of legs, which are slightly longer than the first and three times as long as the fourth, are four times the length of the carapace. In the first three pair of legs the merus is compressed and has its anterior border spinate and its posterior borders spinulate, the posterior border of the propodite carries a few distant articulating spinelets, and the dactylus—which is about two-thirds the length of the

preceding joint—has a close comb of articulating spines along its posterior border.

The fourth (dorsal) pair, which are extremely slender, have the posterior border of the merus strongly spinate: the propodite is several times longer than the minute dactylus.

The terminal joint of the male abdomen ends acutely.

Hairs and bristles are sparsely present just as in the preceding species.

The carapace of a large egg-laden female is 38 millim. long and 30 millim. broad.

In the Indian Museum are eleven specimens, representing adults and young of both sexes, dredged off the coast of Travancore at 430 fathoms, on a bottom which, though muddy, was abundantly covered with coral.

Family II. LATREILLIDÆ.

Key to the genera of the Family Latreillidæ.

I. Carapace subquadrilateral. Antennæ long. All seven abdominal segments distinct in both sexes ... ... LATREILLOPSIS.

II. Carapace piriform, its anterior portion forming a long subcylindrical "neck." Antennæ short. The 4th, 5th, and 6th, abdominal segments of the female are fused together ... ... LATREILLIA.

LATREILLOPSIS, Henderson.

Latreillopsis, Henderson, Challenger Anomura, p. 21: Ortmann in Bronn's Thier-Reich, v. ii. Arthropoda, p. 1156.

Carapace subquadrilateral, deepish, with vertical side-walls, not entirely concealing the basal joints of the legs: the regions fairly well indicated. Front of moderate width, ending in a spiniform rostrum on either side of which is a long slender divergent "supra-ocular" spine. Linea anomurica present, most distinct posteriorly.

Eyes as in *Latreillia*, large and borne free at the end of slender eyestalks of remarkable length. Antennæ long, freely movable from their base; the peduncle slender, cylindrical, and consisting of four joints, as usual.

Epistome well demarcated from the palate. Buccal cavern much broader in front than behind, the efferent branchial channels very well defined. Though the external maxillipeds do not quite meet across the buccal cavern they are distinctly operculiform, owing to the expansion of their merus.

Chelipeds long and slender but much shorter than the first 3 pairs of legs: their joints, like those of the legs, are cylindrical, and the palm in the male is enlarged and club-shaped.

Legs slender, the first 3 pairs very long; the fourth pair reduced in length, and subchelate.

The abdomen in both sexes consists of 7 separate segments.

The branchial formula is exactly the same as that of *Latreillia pennifera*, and is as follows:—

Somites and their appendages.	Podobranchiæ.	Arthrobranchiæ. Anterior.	Arthrobranchiæ. Posterior.	Pleurobranchiæ.		
VII.	0 ep	0	0	0	=	ep.
VIII.	1+ ep.	0	0	0	=	1+ ep.
IX.	0+ ep.	1	1	0	=	2+ ep.
X.	0	1	1	0	=	2
XI.	0	0	0	1	=	1
XII.	0	0	0	1	=	1
XIII.	0	0	0	1	=	1
XIV.	0	0	0	0	=	0
	1	2	2	3	=	8+3 ep.

Distribution : Oriental Seas (Andaman S. and Philippine S.).

27. *Latreillopsis bispinosa*, Henderson.

Latreillopsis bispinosa, Henderson, Challenger Anomura, p. 22, pl. ii. fig. 3. ♀.

Carapace longer than broad, shaped much as in *Homola :* frontal region with three sharp slender spines, the middle one—which is the shortest and is slightly deflexed—being the rostrum, the other two—which are about a third the length of the carapace and are slightly uptilted—being placed above the bases of the eye-stalks.

Gastric region tumid, with a tubercle posteriorly and a curved transverse row of tiny tubercles anteriorly. Cardiac region small, tumid, culminating in two tubercles placed side by side or confluent. Branchial regions with an irregular surface, and with one or two tiny spinules on the side wall.

Hepatic regions standing out like a pair of little wings, with two spines—the foremost of which is nearly as long as the rostrum—projecting obliquely forwards from their prominent outer angle, and with one or two small spinules on their under surface.

Eyestalks nearly as long as the supra-ocular spines. Antennal peduncle about as long as the eyes and eye-stalks combined, the flagellum more than three-fourths the length of the carapace.

Chelipeds and legs slender, cylindrical, practically smooth, except for a spine at the far end of the anterior (extensor) border of the merus.

The chelipeds in the male are just over twice, in the female less than twice, the length of the carapace without the rostrum. In the

female they are hardly stouter than the legs; but in the male they are distinctly stouter, especially as regards the palm, which is club-shaped: the palm is much longer than the fingers.

The first three pairs of legs increase in length, gradually but slightly, from before backwards, the 3rd pair being between 4 and $4\frac{1}{2}$ times the length of the carapace: the dactyli are long and curved.

The fourth pair of legs are a little longer than the male chelipeds: their last two joints are short, and the dactylus folds down, like a knife-blade, on a double row of spines along the posterior border of the propodite.

In both sexes the last abdominal tergum is shaped like a spear-head, and the 2nd 3rd 4th and 6th terga have an acute tubercle in the middle line.

The carapace of an egg-laden female is 8 millim. long, the same length as that of an apparently adult male.

Colours in spirit yellow, the fingers and eyes dark brown.

In the Indian Museum are two males and a female from the Andaman Sea, 53 fathoms (*not* the same station as that where Latreillia was dredged).

Distribution: off the Andamans and off the Philippines.

Latreillia, Roux.

Latreillia, Roux, Crust. Medit. pl. xxii. and text: Milne Edwards, Hist. Nat. Crust. I. p. 277: DeHaan, Faun. Japon., Crust., p. 105: Heller, Crust. Sudl. Europ. p. 146: Henderson, Challenger Anomura, p. 23: A. Milne Edwards and Bouvier, Crust. Decap. Hirondelle, Brach. et Anom. (Monaco 1894) p. 59: Bouvier, Bull. Soc. Philom. 1896, p. 64: Ortmann in Bronn's Thier-Reich, V. ii., Arthropoda, p. 1156.

Carapace elongate-piriform, not covering the basal joints of the legs, its anterior part prolonged to form a subcylindrical "neck" at the end of which are the spiniform rostrum, lying deflexed between two long slender divergent "supra-ocular" spines, the eyes, the antennules, and the antennæ. The regions are fairly well indicated, and there is no *linea anomurica*.

Eyes much as in *Homola*, large and borne free at the end of very long and slender basal stalks. Antennæ short, of filiform slenderness, freely movable from their base.

Epistome of great length fore and aft, corresponding with the "neck" of the carapace. Buccal cavern well demarcated from the epistome, the efferent branchial channels well defined. External maxillipeds not completely closing the buccal orifice: they have a pediform cast, the ischium and merus being rather narrow and the flagellum coarse.

Chelipeds long and slender, but always much shorter than the first three pairs of legs: all the joints are slender, except the palm, which in one or both sexes is club-shaped. Fingers shorter than the palm.

First three pair of legs very long and slender; some of their joints are spiny.

Fourth pair of legs more or less reduced in length, subdorsal in position.

The abdomen of the male consists of seven separate segments; that of the female consists of five segments—the 4th 5th and 6th being fused together.

The branchial formula given by Bouvier for *Latreillia elegans*, and verified by myself for *Latreillia pennifera*, is as follows:—

Somites and their appendages.	Podo-branchiæ.	Arthrobranchiæ.		Pleuro-branchiæ.	
		Anterior.	Posterior.		
VII.	0 ep.	0	0	0	= 0 ep.
VIII.	1+ep.	0	0	0	= 1+ep.
IX.	0+ep.	1	1	0	= 2+ep.
X.	0	1	1	0	= 2
XI.	0	0	0	1	= 1
XII.	0	0	0	1	= 1
XIII.	0	0	0	1	= 1
XIV.	0	0	0	0	= 0
	1+3 ep.	2	2	3	= 8+3 ep.

Distribution: Atlantic coasts of North America between 38° and 40° N.: off the Canaries and Azores: Mediterranean Sea: Bay of Bengal and Andaman Sea: Japanese Seas: New South Wales coast.

28. *Latreillia pennifera*, n. sp.

Very closely related to *L. elegans*, Roux.

Carapace smooth, without spines, though the hepatic regions have a strong bulge: the "neck" is rather slender (equally so in both sexes) and is nearly as long as the rest of the carapace measured in the middle line.

Rostral spine short, acute, strongly deflexed. Supraocular spines as long as the eyestalks, about half the total length of the carapace ("neck" included) measured in the middle line; occasionally bearing some tiny secondary spinules.

Antennules slightly longer than the eyestalks: the outer flagellum longer and very much coarser than the inner.

The chelipeds, which are slightly longer in the male than in the female, are between $3\frac{1}{2}$ and 4 times the total length of the carapace:

their joints are long, slender, and cylindrical, except the palm of the male, which is club-shaped : there are a few spines on the arm, but the other joints are smooth : the fingers are not half the length of the hand (palm).

The first 3 pair of legs, though they increase slightly in length from before backwards, are not very dissimilar in length, the first pair being nearly 8 times the total length of the carapace. All their joints are slender : the merus is spinate, the carpus sparsely spinate, and the propodite is slightly dilated at the far end of the posterior border where there are a few spines.

The last pair of legs are between $4\frac{1}{2}$ and 5 times the total length of the carapace and reach almost to—in the female even beyond—the end of the carpus of the last pair but one : the merus is rather sparsely spinate, chiefly on the posterior border, and the propodite is plumed on both sides so as to exactly resemble the vane of a feather : the dactylus is extremely short.

In both sexes the last abdominal segment is shaped like a spear-head : in the female the 2nd and 3rd abdominal terga have a median spine and the 4th has a spine at the proximal end of either lateral border.

Colours in spirit yellow. In life the carapace is reddish with longitudinal stripes of dark red, the eyestalks chelipeds and legs are closely cross-banded with red, and the eyes are purplish black.

The carapace of an adult female, with eggs, is 11 millim. long.

14 specimens from the Gulf of Martaban 53 and 67 fms., and from off the northern end of Ceylon, 28 fathoms.

MATERIALS

FOR A

CARCINOLOGICAL FAUNA OF INDIA.

No. 5.

THE BRACHYURA PRIMIGENIA

OR

DROMIACEA.

BY

A. ALCOCK, M.B., C.M.Z.S.

SUPERINTENDENT OF THE INDIAN MUSEUM.

[*Reprinted from the "Journal Asiatic Society of Bengal," Vol. LXVIII. Part II. No. 3. 1899.*]

CALCUTTA:

BAPTIST MISSION PRESS.

1899.

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